OPPORTUNITIES AND CHALLENGES OF IMPLEMENTING IMMERSIVE COMMERCE STRATEGY IN MODERN INDIAN RETAILING

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Submitted to the University of Calicut
For the award of the degree of

Doctor of Philosophy in Commerce

ANOOP P

Under the Supervision of

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LIST OF ABBREVIATIONS

3D	:	Three-Dimensional
AGFI	:	Adjusted Goodness of Fit Index
AI	:	Artificial Intelligence
AI-3D	:	Artificial Intelligence–enabled 3D Visualization
AMCIS	:	Americas Conference on Information Systems
AMOS	:	Analysis of Moment Structures
ANOVA	:	Analysis of Variance
APA	:	American Psychological Association
AR	:	Augmented Reality
AV	:	Augmented Visualization
AVE	:	Average Variance Extracted
B	:	Unstandardized Regression Coefficient
BCG	:	Boston Consulting Group
C.R.	:	Critical Ratio
CAGR	:	Compound Annual Growth Rate
CB	:	Consumer Barriers
CE	:	Consumer Engagement
CFA	:	Confirmatory Factor Analysis
CFI	:	Comparative Fit Index
CMB	:	Common Method Bias
COVID-19	:	Corona virus Disease 2019
CR	:	Composite Reliability
CRet	:	Customer Retention
CRM	:	Customer Relationship Management
CSR	:	Corporate Social Responsibility
D2A	:	Direct-to-Avatar
df	:	Degrees of Freedom
DOI	:	Diffusion of Innovation
DPIIT	:	Department for Promotion of Industry and Internal Trade
E-Commerce	:	Electronic Commerce

EE	:	Experiential Enhancement
EFA	:	Exploratory Factor Analysis
EY	:	Ernst & Young
FC	:	Financial Constraints
FDI	:	Foreign Direct Investment
FFS	:	Fund of Funds for Startups
FMCG	:	Fast-Moving Consumer Goods
FR	:	Financial Risks
GDP	:	Gross Domestic Product
GDPR	:	General Data Protection Regulation
Gen Z	:	Generation Z
GFI	:	Goodness of Fit Index
GP	:	Growth Potential
GST	:	Goods and Services Tax
HMD	:	Head Mounted Display
HSD	:	Honestly Significant Difference
HUL	:	Hindustan Unilever Limited
IB	:	Infrastructure Blockage
IBEB	:	India Brand Equity Foundation
IC	:	Innovation Capability
i-Commerce	:	Immersive Commerce
ICT	:	Information and Communication Technology
IFI	:	Incremental Fit Index
IN	:	Inclusivity
IoT	:	Internet of Things
ISM	:	Interpretive Structural Modeling
IT	:	Information Technology
KMO	:	Kaiser–Meyer–Olkin Measure of Sampling Adequacy
KPI	:	Key Performance Indicator
KPMG	:	Klynveld Peat Marwick Goerdeler
M	:	Mean
MANOVA	:	Multivariate Analysis of Variance

M-Commerce	:	Mobile Commerce
MR	:	Mixed Reality
MSME	:	Micro, Small and Medium Enterprises
N	:	Number of Respondents
NASSCOM	:	National Association of Software and Service Companies
NFI	:	Normed Fit Index
OM	:	Omni-channel Model
OPR	:	Operational Risk
PLS-SEM	:	Partial Least Squares – Structural Equation Modeling
POS	:	Point of Sale
PP	:	Product Positioning
PRISMA	:	Preferred Reporting Items for Systematic Reviews and Meta-Analyses
PV	:	Perceived Value
p-value	:	Probability Value
PwC	:	PricewaterhouseCoopers
RAI	:	Retailers Association of India
RBV	:	Resource-Based View
RFI	:	Relative Fit Index
RFID	:	Radio Frequency Identification
RL	:	Reliability
RMR	:	Root Mean Square Residual
RMSEA	:	Root Mean Square Error of Approximation
ROI	:	Return on Investment
SD	:	Standard Deviation
SEM	:	Structural Equation Modelling
SG	:	Sales Growth
SIIC	:	Successful Implementation of Immersive Commerce
SLR	:	Systematic Literature Review
SMEs	:	Small and Medium Enterprises
SOP	:	Standard Operating Procedure
S-O-R	:	Stimulus–Organism–Response
SPSS	:	Statistical Package for the Social Sciences

SR	:	Security and Privacy Risks
SRMR	:	Standardized Root Mean Square Residual
TA	:	Trend Adaptation
TAM	:	Technology Acceptance Model
TC	:	Tech-related Constraints
TLI	:	Tucker–Lewis Index
TOE	:	Technology–Organization–Environment Framework
TPB	:	Theory of Planned Behavior
t-test	:	Independent Samples t-Test
UNCTAD	:	United Nations Conference on Trade and Development
UPI	:	Unified Payments Interface
UTAUT	:	Unified Theory of Acceptance and Use of Technology
UX	:	User Experience
VR	:	Virtual Reality
WEF	:	World Economic Forum
XR	:	Extended Reality
χ^2/df	:	Chi-square to Degrees of Freedom Ratio

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CHAPTER 5

ANALYSIS OF POSITIVE IMPACT FACTORS INFLENCING THE IMPLEMENTATION OF IMMERSIVE COMMERCE

5.1 Introduction

This chapter was to accomplish in the study of the factors that have positive impact on the Successful Implementation of Immersive Commerce in Indian retail sector. Immersive Commerce technologies gain popularity due to their capacity to enrich the experience of the customers. The retailers need to be made familiar to know the major opportunities, customer loyalty results, business performance implications and expectation concerning future potentials.

In line with this the chapter provides the objectives and hypotheses, methodology and database employed and the variables that were taken into account during the analysis. The chapter also analyses the connection between the positive impact factors and the Successful Implementation of Immersive Commerce that provides evidence based information to inform strategic decision making in the retailing industry.

5.2 Objectives

In order to analyze the positive impact factors affecting Successful Implementation of Commerce, following four key objectives are considered;

1. To examine the retailers' perceived opportunities that facilitates the Successful Implementation of Immersive Commerce in the retail sector.
2. To assess retailers' perception towards Customer Loyalty in Immersive Commerce.
3. To investigate the impact of Immersive Commerce on retail business performance.
4. To identify the future potentials of Immersive Commerce in reshaping their innovation and growth

The aim of this chapter is to analyze retailers' perceptions and experiences regarding the Implementation of Immersive Commerce in the Indian retail sector, focusing on the opportunities it offers, its influence on customer loyalty and business performance, the anticipated future potential of such technologies, and how these positive factors collectively contribute to the Successful adoption of Immersive Commerce practices.

5.3 Hypotheses

The hypotheses formulated to examine whether the factors supported to the overall adoption and execution of Immersive Commerce. The following hypotheses are formulated:

H1: Experiential Enhancement has a significant positive impact on the Successful Implementation of Immersive Commerce.

H2: Product Positioning has a significant positive impact on the Successful Implementation of Immersive Commerce.

H3: There is a significant relationship between Opportunities and the Successful Implementation of Immersive Commerce.

H4: Customer loyalty in Immersive Commerce is significantly influenced by Perceived Value.

H5: Customer loyalty in Immersive Commerce is significantly influenced by Customer Engagement.

H6: Customer loyalty in Immersive Commerce is significantly influenced by Reliability.

H7: Customer Loyalty has a significant positive impact on the Successful Implementation of Immersive Commerce.

H8: Sales Growth has a significant positive relationship with the Successful Implementation of Immersive Commerce.

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H9: Customer Retention has a significant relationship with the Successful Implementation of Immersive Commerce.

H10: Trend Adaptation has a significant relationship with the Successful Implementation of Immersive Commerce.

H11: Business Performance significantly influences the Successful Implementation of Immersive Commerce.

H12: Innovation Capability has a significant effect on the Successful Implementation of Immersive Commerce.

H13: Growth Potential has a significant effect on the Successful Implementation of Immersive Commerce.

H14: Perceptions of Innovation Capability and Growth Potential differ significantly across retail characteristics

5.4 Methodology and Database

This section deals with the analysis of Positive Impact factors and establishes a causal relationship between Positive Impact Factors and Successful Implementations of Immersive Commerce. The researcher adopted descriptive and quantitative research design to collect the data through structured questionnaires. All the constructs measured using a five-point Likert Scale. Responses were collected from various retail format, from multiple locations (Tier 1 and Tier 2) and from multiple retail categories. To understand the influence of Positive Impact factor, various purpose of the study such as Opportunities, Customer Loyalty, Business Performance and Future Potential was analysed by extracting different variables and the data was processed using Statistical software packages like, SPSS and AMOS.

In preliminary stage, Descriptive Statistics were adopted to understand retailers' perception level. To ensure internal consistency of the construct, reliability test is used by Cron-bach Alpha and validity is measured through Confirmatory Factor Analysis to assess the construct validity, both Convergent and Discriminant. And on final stage, Structural Equation Modeling (SEM) is

applied to test the causal effect of positive impact factor. Secondary data is also supported to ensure the conceptual and theoretical groundness

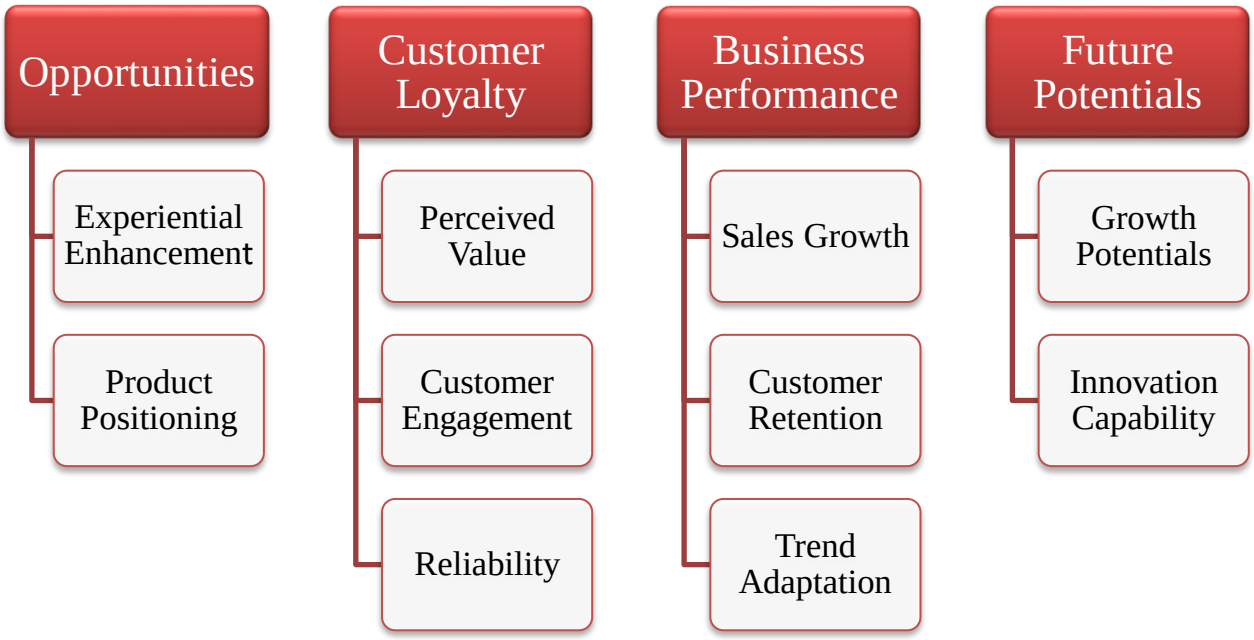
5.5 Variables Used for the Analysis

The researcher conducted the study on the positive impact factors are Opportunities, Customer Loyalty, Business Performance and Future Potentials.The following figure No. shows variables used for analysing the positive impact factors for the Successful Implementation of the Immersive Commerce. For this purpose, the variables are classified into Dependent Variablees and Independent variables. The factor that is affected or changed due to another variable is called Dependent variable .Here, Dependent variable is considered as Successful Implementation of Immersive Commerce.

Independent variables are shown as below;

Figure 5.1

Independent Variables



The Categorical Variables include retail characteristics of the respondents like types of retail (Retail format), Annual Turnover, Locations and Category of Retail are used in the study.

Table 5.1

Categorical Variables

Categorical Variable	Category	Response Option
Retail Format	Nominal	Brick and Mortar E-Commerce or M.Commerce Omni-channel
Annual Turnover	Ordinal	50 Lakhs -1 crore 1 crore-5 crore 5 crore- 10 crore Above 10 crore)
Location	Nominal	Bengaluru Mumbai Delhi NCR Hyderabad Pune Chennai Ahamedabad Indore Jaipur Kochi Coimbatore Bhubaneswar
Category of Retail	Nominal	Apparels and Fashions Electronics and Gadgets Grocery and FMCG Furniture and Home Décor

		Beauty and Health care Others

5.6 Demographic Profile of Retailers

The demographic profile of the respondent is explained as below

Table 5.2

Frequency distribution of the retailers

Sl No.	Demographic Variables	Frequency	Percentage
1	Gender		
	Male	252	69.7
	Female	138	30.3
	Others	0	0
	Total	390	100
2	Age		
	18-40	261	66.9
	41-60	120	30.8
	60 Above	9	2.3
	Total	390	100
3	Educational Qualification		
	School or Below	5	1.3
	Diploma	4	1
	Degree	35	9
	Masters Degree	113	30.3
	Professional Degree	221	56.7
	Ph.D	11	2.8
	Total	390	100
4	Position/Designation		
	Owner	175	44.9

	Manager	109	27.9
	Franchise Partner	74	19
	Others	32	8.2
	Total	390	100
5	Retail type/Format		
	Brick and Mortar	18	4.6
	E-Commerce/M-Commerce	144	36.9
	Omni-Channel	228	58.5
	Total	390	100
6	Experience		
	Less than 1 year	11	2.8
	1-3 years	50	12.8
	4-7 years	162	41.5
	8-10 years	151	38.7
	Above 10 years	16	4.2
	Total	390	100
7	Annual Turnover		
	Less than 50 lakhs	21	5.1
	50 Lakhs - 1 crore	79	20.5
	1 crore- 5 crore	131	33.3
	5 crore - 10 crore	89	23.1
	Above 10 crore	70	17.9
	Total	390	100
8	Location		
	Bengaluru	52	13.3
	Mumbai	36	9.2
	Delhi NCR	43	11
	Hyderabad	31	7.9
	Pune	22	5.6
	Chennai	27	6.9

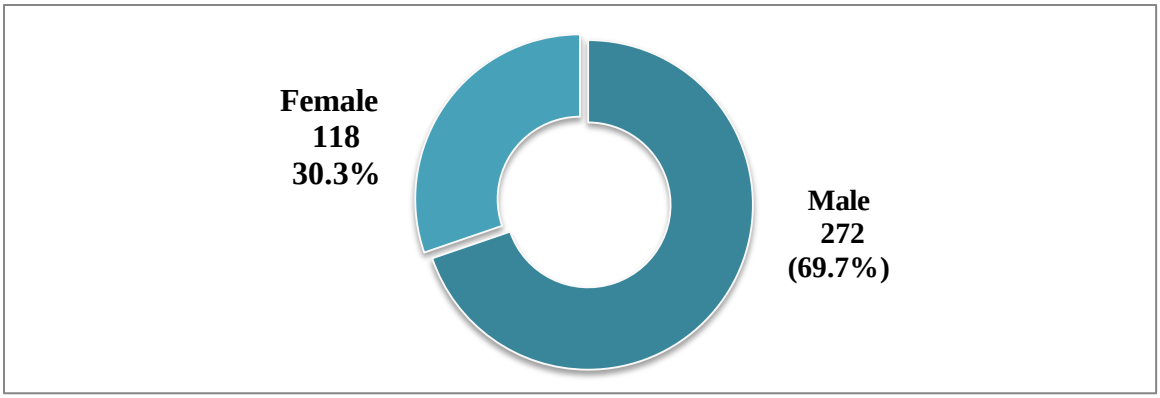
	Ahamedabad	27	6.9
	Indore	18	4.6
	Jaipur	24	6.2
	Kochi	54	13.8
	Coimbatore	45	11.5
	Bubaneswar	11	2.8
	Total	390	100
9	Category of Business		
	Apparel and Fashion	105	27
	Electronics and Gadget	36	9
	Grocery and FMCG	97	25
	Furniture and Home Decore	82	21
	Beauty and Health Care	24	6
	Others	46	12
	Total	390	100

The above table is shows demographic profile of the retailers who are involved in the Implementation of the Immersive Commerce in retail in India. These people are the most important stakeholders that contribute to adoption or introduction and of such technology as AR/VR to the retail business. The factors to be taken into consideration are gender, age, education level, years of experience, designation of the respondents, retail format they adopted, category of retail, turnover of the retail, location of retail etc., in retailing. All these demographic attributes are possible contributors of the perceptions, preparedness, and strategic actions to Immersive Commerce. To give clear understanding of respondent profiles that are pertinent to the study, the extensive explanation of the sample characteristic is presented consisting of suitable graphs.

5.6.1 Gender-wise Classification of Respondents

Figure 5.2

Classification on the basis of Gender



The sample comprised predominantly male respondents (69.7%), while females constituted 30.3%, and there were no respondents identifying as others. This gender distribution reflects the ongoing dominance of male leadership in Indian retail decision-making roles. While female participation is present, it is comparatively limited, potentially influencing perspectives on technology adoption and Immersive Commerce Implementation. The gender disparity may impact strategic priorities, risk perception, and innovation adoption rates, highlighting the importance of understanding how gender roles influence Immersive retail decisions in India's evolving digital retail environment.

5.6.2 Age-wise Classifications of the respondents

Figure 5.3

Classification on the basis of Age



Most of the respondents belong to the age category of 18-40 years (66.9%), then 41-60 years (30.8%) and lastly unreached 60 years group (2.3%). This means that the Immersive Commerce

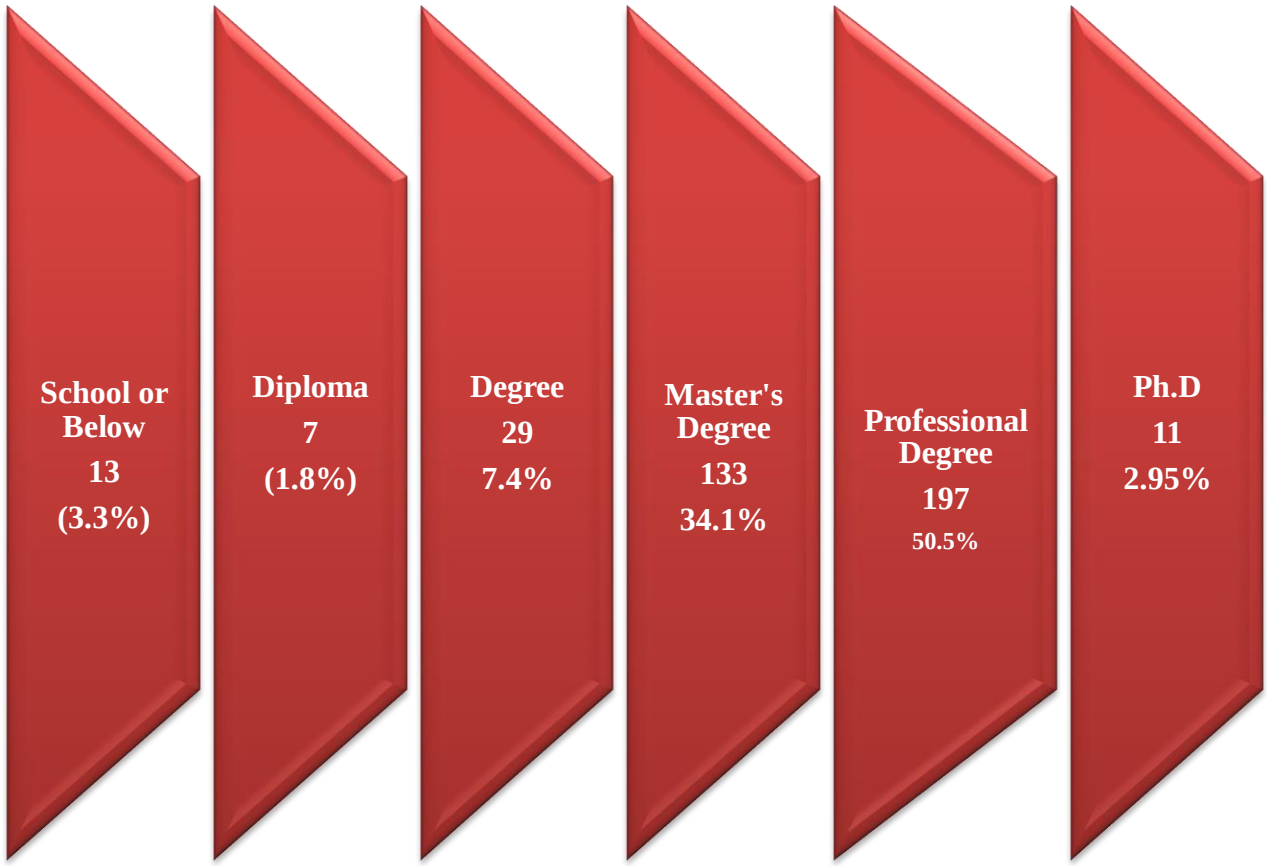
strategies can be best developed by the young and middle-aged retailer specialists. These younger generations tend to be more tech-savvy and flexible to such new retail technologies as AR/VR. The low participation of age groups above 25 implies there might be certain generational discrepancies with their technological usage and willingness to embrace change, which can influence the Immersive Commerce adaptation speed in the deployment of retail environments of varying types.

5.6.3 Educational Qualifications of the Respondents

More than 84 percent of the respondents have higher educational qualification, 50.5 percent have professional degrees and 34.1 percent master degrees. This profile of education shows that it is a highly qualified sample, which means that most respondents will probably understand the emergent technologies such as the Immersive Commerce better. Very few proportions had lower education levels (3.3 percent school and below). The availability of 2.9 percent of the people holding Ph.D. also brings the academic substance in the sample. Such an educated generation can be even more open to digital transformation and it can take well-informed decisions about retail innovation

Figure 5.4

Classification on the basis of Educational Qualifications

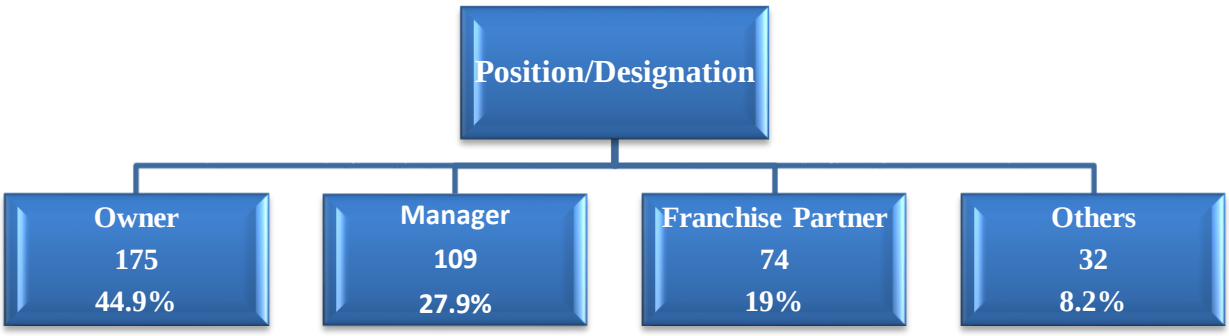


5.6.4 Position/Designation of Retailer

The retail positions represented by the respondents were also wide ranged with business owners 44.9%, managers 27.9% and franchise partners 19% with the others (consultants, supervisors or administrative personnel) standing at 8.2%. The given work points out the fact that most of the decision-makers are directly related to the process of running the business or have a considerable influence on the choice of actions being taken in the sphere of Immersive Commerce. Presence of the group known as the others introduces variety and reflects on those belonging to the operation and support functions and thereby, the same can affect immersion Commerce Implementation in an indirect manner. The diverse roles secure the realization of the study both in terms of strategic perspective and hands-on perspective of the contemporary Indian retail environment.

Figure 5.5

Classification on the basis of Position/Designation



5.6.5 Year of Experience of the respondents

The respondents were mostly experienced professionals, whereby 41.5 percent had 4-7 years of experience in the retail and 38.7 percent had 8-10 years. Again, the number of doctors with less than 3 years of experience (15.6%) or more than 10 years (4.2%) is also small. This should give the idea that professionals in the middle of the career path win in the Immersive Commerce decision space, and probably with experience and also flexibility to the new technology. Being in the business, they have a chance to consider old-fashioned retail strategies and new online tactics in balance. Little or huge experience would mean that they are unexposed or change resisters, respectively, and this will affect the rate of adoption.

Figure 5.6

Classification on the basis of Year of Experience

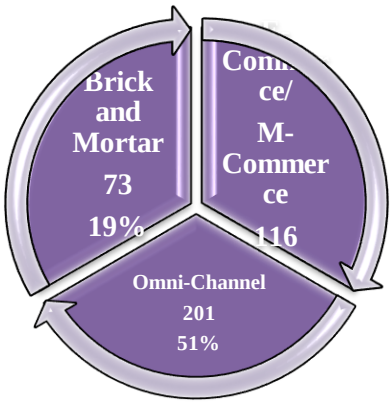
Below 1 year	1-3 years	4-7 years	8-10 years	Above 10 years
•11 •2.8%	•50 •12.8%	•163 •41.5%	•150 •38.7%	•16 •4.2%

5.6.6 Retail Format of the Business

The largest segment was Omni-channel retailers (51%), then there were e-Commerce/m-Commerce retailers (30%) and brick-and-mortar stores (19%). This strongly indicates the change toward one in which retailing becomes intertwined between physical and provide experiences.

Figure 5.7

Classification of retail based on Retail format



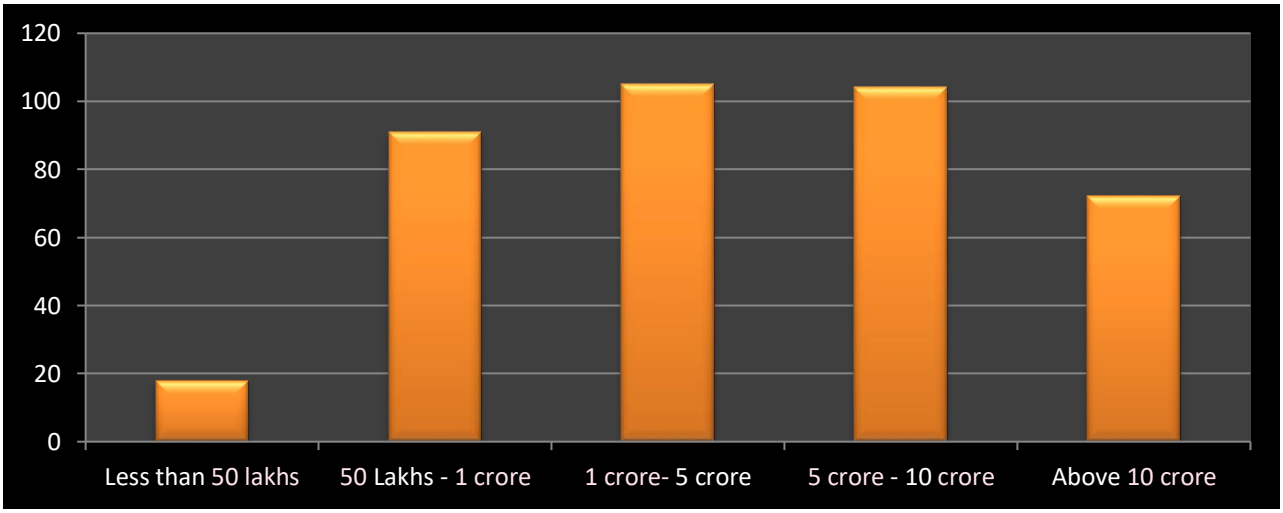
The preference of Omni-channel formats reveals the increasing interest in intermediary technologies between online and offline retail which is exactly the niche Immersive Commerce will fit into. The respondents of e-Commerce themselves are digitally native and could be already trying AR/VR interfaces. There are fewer traditional retailers who might provide the answers to barriers and challenges to Immersive Commerce adoption representing the legacy system point-of-view.

5.6.7 Annual Turnover of the Business

Businesses turnover varied in all segments and most of them were between 1-10 crores (56 per cent). Particularly, 29 percent said 1-5 crore, 27 percent consisted of 5-10 crore, and 22 percent said 50 lakh to 1-crore. The 18 percent of high-turnover businesses (more than Indian rupees 10 crore) and 4 percent of low-turnover (fewer than 50 lakhs) were found. This speaks of the participation of predominately medium-sized retailers who will probably be enthusiastically scaling and innovating. Their financial scope allows them to invest in the sphere of Immersive Commerce tools, but high-scale and low-scale respondents may vary in strategic direction and toleration of risks.

Figure 5.8

Classification of retail on the basis of Annual Turnover



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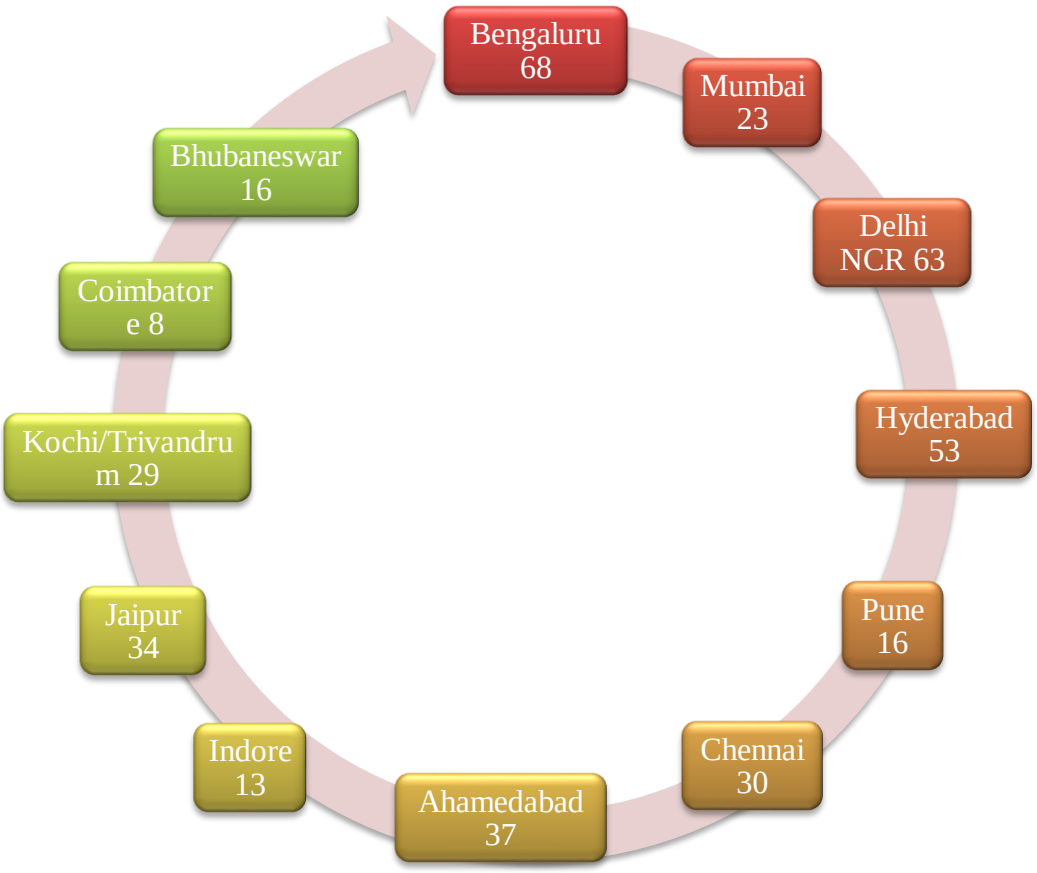
5.6.8 Location of the Retail

The sample respondents across cities indicate a strong concentration in Tier 1- Retail/IT Hubs, reflecting the prominence of major urban markets in the study. Bengaluru (68), Delhi NCR (63), and Hyderabad (53) record the highest representation, highlighting their significance as leading hubs for technology adoption, modern retail formats, and innovative commerce practices. Mumbai (23), Chennai (30), and Pune (16) also contribute with relatively moderate respondents,

suggesting steady but comparatively balanced participation. Whereas, Tier 2 cities such as Ahmadabad (37), Jaipur (34), and Kochi/Trivandrum (29) show notable engagement, indicating growing awareness and adoption potential beyond metros. Smaller Tier 2 cities like Indore (13), Bhubaneswar (16), and Coimbatore (8) have lower representation, reflecting comparatively limited exposure or scale of immersive commerce initiatives. Overall, the distribution suggests that while immersive commerce is predominantly driven by Tier 1 cities, Tier 2 cities are emerging as important markets, pointing toward a gradual diffusion of immersive retail practices across urban India.

Figure 5.9

Classification of retail on the basis of Location



5.6.9 Category of Retail

The following figures show that the highest adoption rate of Immersive Commerce is in the Apparel and Fashion category (132 retailers), where Immersive technologies and virtual solutions, including virtual try-ons, product visualization in a three-dimensional mode, and AR room set-up, are highly applicable. Similarly, in the Grocery and FMCG segment and Furniture and Home Décor, adoption is in the Apparel and Fashion level (122 and 103 retailers, respectively) with fairly strong applicability to Immersive technologies. The less-adopted online shopping categories are Electronics and Gadgets (45) and Beauty and Health Care (30), which might be because of the greater technological complexity or the reluctance of the customers in these areas to change. Another category (58: this is called the Others category) implies that even the businesses not considered the mainstream areas such as books, toys, or sports goods would be tested into the world of Immersive Commerce. Remarkably, the share of Tier I cities is dominating in all the categories and demonstrates the better infrastructure, digital maturity, and a more customer- engagement level, and Tier II cities signals the novice interest with increasing potential in Immersive retail experiences.

Figure 5.10

Classification of retail on the basis of Category of Retail



5.7 Impact of Opportunities on Immersive Commerce

The opportunities such as Experiential Enhancement and Product Positioning positively influence the Successful Implementation of Immersive Commerce in Indian Retail Sector.

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5.7.1 Descriptive Statistics of Opportunities

Following table shows the descriptive statistics of opportunities

Table 5.3

Descriptive Statistics of Opportunities

Construct	Item Code	Indicators	N	Mean	SD	Rank
Experiential Enhancement	EE1	Use of Immersive technology enhances the in-store experience for customers.	390	4.40	.491	4
	EE2	Customers feel more engaged due to interactive digital features.	390	4.42	.493	2
	EE3	Immersive Commerce creates a memorable shopping experience.	390	4.48	.500	1
	EE4	Visual immersion increases customer satisfaction.	390	4.41	.492	3
Product Positioning	PP1	Immersive Commerce helps us display products more effectively.	390	4.31	.467	3
	PP2	Our product features are better communicated through AR/VR tools.	390	4.32	.472	2
	PP3	Digital environments allow innovative product presentation	390	4.44	.507	1
	PP4	Customers can explore product options more clearly using Immersive tools.	390	4.3	.475	4

This construct indicate that retailers have examined the opportunities to facilitate the Implementation of Immersive Commerce in the Indian Retailing. The Experiential Enhancement indicators show high mean scores, ranging from 4.40 to 4.48, confirming that Immersive technologies significantly enhance the retail experience. Retailers have clear idea that the Immersive tools enhance customer engagement, create memorable and interactive shopping atmosphere, thereby improving customer satisfaction. The standard deviation values (SD ≈ 0.49 to 0.50) are relatively low, indicates that low variability in responses and a consistent perception among respondents.

In the case of Product Positioning construct, the mean values is ranging from 4.31 to 4.44 indicates that Immersive Commerce enables more effective product display, clearer communication of product features, and innovative visual presentation. The ability of customers to explore products in digital or augmented environments is viewed as a notable advantage. The standard deviations (SD ≈ 0.46 to 0.51) again show low dispersion, indicating high respondent agreement.

Across both constructs, with the **low standard errors** confirms that there is a stability and reliability in mean estimates. Overall, the findings clearly indicate that retailers view Immersive Commerce as a **valuable strategic opportunity** for **enhancing experiential value** and **strengthening product presentation** within modern retail environments.

5.7.2 Correlation Analysis between Experiential Enhancement and Product Positioning

Correlation is simply refers to the association or the relationship between two or more correlation. The researcher analyse different constructs of Opportunities of Immersive Commerce by using Pearson Coefficient of Correlation

Hypotheses Development

Experiential Enhancement and Product Positioning are conceptually interrelated constructs in the Immersive retail environment. The retailers who paid for enhancing the customer experience through Immersive technologies more wish to adopt Positioning strategies. Similarily, effective product positioning can strengthen the experiential impact of product. This reciprocal

reinforcement indicates that improvements in one construct accompany improvements in the other. Therefore, it is hypothesized that Experiential Enhancement and Product Positioning are positively and significantly associated with each other.

H1: There is a significant relationship between Experiential Enhancement and Product Positioning

Table 5.4

Correlation Coefficient between Experiential Enhancement and Product Productioning

Variables	Correlation (r)	Significance (p-value)	Result
Experiential Enhancement ↔ Product Positioning	0.418**	0.000	Supported
Correlation is significant at the 0.01 level (2-tailed).			

The results show that there is a moderate positive relationship between Experiential Enhancement and Product Positioning. Experiential Enhancement plays a significant role in the Successful Implementation of Immersive Commerce that the retailer should made some improvements in customer interaction, sensory engagement, and Immersive experiences which can meaningfully drive Implementation success. At the same time Product Positioning refers to the strategic process of creating a distinct image and identity for a product in the minds of consumers, emphasizing its unique attributes and benefits to differentiate it from competing products in the market (Kotler & Keller, 2016).The positive correlation (r = 0.418) between Experiential Enhancement and Product Positioning shows that it is a strategy of the retailers to enhance the Immersive experience in the product or service they offered and thereby establish and maintain a brand or product's unique identity in the minds of consumers.

5.7.3 Regression Analysis

Regression analysis conducted to examine the influence of retailers' perceived opportunities on the Successful Implementation of Immersive Commerce in the Indian retail sector.

Table 5.5

Regression analysis between Experiential Enhancement, Product Positioning and Successful Implementation of Immersive Commerce

Variable	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	2.856	.093		30.725	.000
Experiential Enhancement	.139	.019	.347	7.415	.000
Product Positioning	.134	.020	.306	6.554	.000
Dependent Variable : Successful Implementation of Immersive Commerce					

The regression analysis indicates that both experiential enhancement and product positioning significantly influence the successful implementation of immersive commerce. Experiential enhancement shows a strong effect with an unstandardized coefficient of B = 0.139, a standardized beta of β = 0.347**,** and a t-value of 7.415, which is statistically significant at p < **.001**, indicating that increases in experiential enhancement improves the implementation success. Product positioning also demonstrates a positive and significant impact (B = 0.134, β = 0.306, t = 6.554, p < .001**)**, suggesting that effective product visualization and presentation through immersive technologies meaningfully support successful implementation. The constant value (B = 2.856, t = 30.725, p < .001**)** reflects a moderate baseline level of implementation readiness. Overall, the results confirm that both opportunity-based factors contribute significantly, with experiential enhancement exerting a comparatively stronger influence on the successful implementation of immersive commerce.

5.8 Retailer' Perception Towards Customer Loyalty

The Customer is the king of sovereignty, and businesses depend heavily on the identity and allegiance of their customers. Customer loyalty is crucial to the success of Immersive Commerce adoption. Here, the researcher uses a few variables or characteristics to examine the retailer's perception of customer loyalty in order to assess the successful Implementation of Immersive Commerce.

5.8.1 Descriptive Statistics

The following table shows the descriptive statistics of Customer Loyalty

Table 5.6

Descriptive Statistics of Customer Loyalty

Constructs	Factors	N	Mean	Std. Deviation	Rank
Perceived Value	Immersive experiences add value to customer interaction.	390	3.68	0.630	2
	Customers perceive Immersive Commerce as useful.	390	3.69	0.615	1
	Immersive technology increases the attractiveness of our brand.	390	3.67	0.649	3
	The perceived benefits of Immersive shopping are high.	390	3.66	0.651	4
Customer Engagement	Customers spend more time interacting through Immersive features.	390	3.66	0.649	4
	Gamified or interactive elements increase customer involvement.	390	3.71	0.639	2
	AR/VR content keeps customers engaged throughout the visit	390	3.73	0.672	1

	Customers return to experience the Immersive environment again.	390	3.68	0.622	3
Reliability	Our Immersive systems function consistently during operations.	390	4.04	0.501	4
	The accuracy of product visualization in Immersive tools is high.	390	4.4	0.491	3
	Customers trust the Immersive features for making purchase decisions	390	4.48	0.5	2
	Technical reliability enhances customer confidence.	390	4.41	0.492	1

The perception of most individuals is that Immersive Commerce enhances the shopping experience. They consider the Immersive characteristics helpful, in particular, to make brands look good (Mean= 4.48) and to facilitate shopping (Mean= 4.40). The 4.04-4.48 levels indicate that shoppers believe that they do indeed gain access to the Immersive tech, including receiving a clearer view of goods, looking through improved, and making more intelligent decisions. This indicates that Immersive Commerce is not only a recent trend but it is value-adding and results in happier customers and a higher quality shopping experience to them.

The scores are quite good indicating that the Immersive feature contributes to extending the duration and increasing the interest of the shoppers in products sightseeing (Mean = 3.66 to 3.73). Interactive and game-like features are the most effective and Immersive content keeps the shopper interested during the experience. However, the scores are less than the perceived value scores indicating that the shoppers enjoy the experience, but retailers may need to introduce more interesting interactive elements that are more personalized to motivate the shopper to come back and remain interested in the experience. Effective storytelling and interactive touch points would also assist in raising the engagement and returning shoppers.

Immersive Commerce is unreliable and ineffective. Customers feel that the Immersive tools exhibit transparent product images (Mean= 4.40) and are reliable in their sales. They also believe

that technical reliability creates their trust (Mean= 4.41), demonstrating that the performance without mistakes and without any hassles is highly valued. To the point, the scores on high reliability indicate that retailers operate regular Immersive resources, and the optimism is what promotes further usage and favorable attitudes.

5.8.1 Multiple Regression & Hypothesis Testing

Multiple Regression Analysis is a tool evaluated for the purpose of finding out the effectiveness or the impact of one variable with other variables. The various factors affecting customer loyalty are perceived value, customer engagement and reliability. Customer Loyalty is considered as Dependent variable and the factors influencing customer loyalty is Independent variables. Here, researcher predict the determinants of Customer loyalty each other by applying Multiple Regression.

Hypotheses Development

Customer loyalty is affected by frequent purchase behavior and continuous usage of customer.. Perceived Value has a significant role to every customer for product acceptance. Cognitive and psychological factors are influencers of Customer loyalty. When Immersive Commerce tools offer interactive engagement, product assurance and superior visualization customers tend to develop a stronger preference for the retailer, increasing loyalty. Thus, higher perceived value is positively influence customer loyalty.

Consumer Engagement is a strong predictor of customer loyalty by which customers interact, participate, and emotionally connect with Immersive features. It build the strong relationship between the customer and the product. The retailer has to involve on customer engagement by giving more add-on values to the product. Higher the Customer Engagement, greater the Customer loyalty.

Reliability in the Immersive system has crucial impact on Customer loyalty.If the trust reduces the perceived risk and uncertainty increases, especially in technology-driven environment. When customers has firm believe in the Immersive Commerce platform that the retailer’s offer is

dependable, secure, and consistent, their willingness to continue using it and stay loyal increases. Thus, reliability is expected to significantly influence customer loyalty.

H1: Customer loyalty in Immersive Commerce is significantly influenced by perceived value, customer engagement, and reliability as perceived by retailers.

Table 5.6

Table Showing Hypothesis Development

Hypotheses No.	**Hypotheses**
H1a:	Perceived Value has significant impact on Customer Loyalty
H1b:	Customer Engagement has positive influence on Customer Loyalty
H1c:	Reliability has positive influence on Customer Loyalty

Table 5.7

Hypothesis Testing Results

Predictors	**Unstandardized Coefficient (B)**	**Std. Error**	**Standardized Coefficient (Beta)**	**t-value**	**Significance (p-value)**
Perceived Value	0.333	0.000	0.441	High ($p < .001$)	0.000
Customer Engagement	0.333	0.000	0.659	High ($p < .001$)	0.000
Reliability	0.333	0.000	0.62	High ($p < .001$)	0.000

The regression analysis indicate that all three predictors of customer loyalty viz., Perceived Value, Customer Engagement, and Reliability have significant and positive influence on the dependent variable, Customer Loyalty ($p < .001$). Among them, Customer Engagement has the ($\beta = 0.659$) and Reliability ($\beta = 0.620$) also indicates a strong influence. Perceived Value ($\beta = 0.441$) has a moderate but positive impact.

5.9 Assessment of Business Performance by Retailer

Assessment of business Performance mainly focuses on the non-financial outcomes resulting from the Implementation of Immersive Commerce. Here, the researcher asses the retailers evaluation on Sales Growth, Customer Retention and Trend Adaptation in Immersive Commerce adoption. Since profit-related data is confidential and more sensitive and the retailers rarely reveal the actual profit figures, it is methodologically more appropriate to assess business performance through self-report friendly indicators such as sales growth, customer retention and trend adaptation.

5.9.1 Descriptive Statistics of Business Performance

The following table shows the descriptive Statistics of Business Performance.

Table 5.8

Descriptive Statistics of Business Performance

Constructs	Factors	Mean	SD	Rank
Sales Growth	Sales have improved since implementing Immersive Commerce.	4.28	0.661	4
	Immersive tools help convert interest into purchase.	4.63	0.493	3
	High product visualization drives impulse purchases.	4.77	0.498	1
	AR/VR features help upsell premium products.	4.64	0.494	2
Customer Retention	Immersive features encourage repeat visits.	3.66	0.598	4
	Loyal customers prefer Immersive shopping environments.	3.71	0.617	1
	AR/VR experiences build long-term relationships.	3.7	0.633	2
	Personalization in Immersive Commerce improves retention.	3.69	0.617	3
Trend Adaptation	We stay competitive by adopting Immersive Commerce trends.	3.72	0.664	2
	Immersive technology positions us as an innovative retailer.	3.69	0.635	3

	Regular updation of Immersive features with new trends.	3.74	0.656	1
	Competitor adoption pressures us to innovate using Immersive tech	3.68	0.668	4

In the construct, Sale growth the statement "High product visualization drives impulse purchases" holds the highest mean (4.77), suggesting that Impulsive buying is a being affected by High Visualisation effect of product. Similarly, "AR/VR features help upsell premium products" (Mean = 4.64) and "Immersive tools help convert interest into purchase" (Mean = 4.63) reflect the advantage of Immersive Commerce by its technological features. Although "Sales have improved since implementing Immersive Commerce" has a comparatively lower mean (4.28), it still indicates positive sales outcomes. This shows that Immersive Commerce focuses both impulse buying and upselling, directly contributing to sales growth.

The customer retention indicators show moderate agreement, with the highest mean score of 3.71 for "Loyal customers prefer Immersive shopping environments." This implies that Immersive experiences can enhance loyalty by offering engaging shopping environments. Additionally, "AR/VR experiences build long-term relationships" (Mean = 3.70) and "Personalization improves retention" (Mean = 3.69) suggest that personalization and sustained engagement through Immersive tools help strengthen customer relationships. However, "Immersive features encourage repeat visits" ranked lowest (Mean = 3.66), indicating that while Immersive Commerce positively influences retention, it may not yet be a primary driver for repeat customer visits compared to other loyalty factors.

For trend adaptation, the highest-rated factor is "Regular updation of Immersive features with new trends" (Mean = 3.74), emphasizing the need for continuous innovation to stay relevant. The statement "We stay competitive by adopting Immersive Commerce trends" (Mean = 3.72) confirms that retailers view Immersive technology as essential for maintaining competitive advantage. Meanwhile, "Immersive technology positions us as an innovative retailer" (Mean = 3.69) shows that Immersive Commerce contributes to brand image and differentiation. The lowest mean (3.68) for "Competitor adoption pressures us to innovate" indicates that although competition exists, retailers are more internally motivated to innovate rather than being pushed by external market forces.

The results show that Immersive Commerce contributes more strongly to Sales Growth than to Customer Retention, while also playing a strategic role in Trend Adaptation. Retailers recognize the value of Immersive experiences in enhancing product appeal and influencing purchase decisions, but there is still room to strengthen its role in driving customer loyalty and repeat engagement.

5.9.2. Multivariate Analysis on Different constructs of Business Performance and its influence on Successful Implementation of Immersive Commerce

The Successful Implementation of the Immersive Commerce is highly influential to various constructs of Business performance. Since, the constructs are multidimensional, Multivariate Analysis (MANOVA) was conducted . This study is based on **performance-based constructs** that consist of multiple interrelated dependent measures.(Tabachnick & Fidell, 2019; Field, 2018).

Hypotheses Development

Business performance is a crucial outcome that impulses how effectively Immersive Commerce contribute to quantifiable improvements in retail sector. Retailers often experience increases in **sales growth**, stronger **customer retention,** and better **trend adaptation** to market changes through enhanced experiences and positioning strategies. These performance indicators collectively tends the operational and strategic gains resulting from Immersive Commerce Implementation. Therefore, it is aligned that retailers who achieve higher levels of sales improvement, retained customers, and active trend adaptation to emerging retail trends are more likely to perceive Immersive Commerce Implementation as Successful.

H1 : There is significant multivariate effect **of** Successful Implementation of Immersive Commerce (SIIC) on the business performance outcomes (Sales Growth, Customer Retention, and Trend Adaptation).

The individual univariate hypotheses formulated are

Table 5.9

Hypothesis Development

Sl No	Hypotheses
H1a:	There is significant relationship between Implementation of Immersive Commerce and Sales Growth
H1b:	T There is significant relationship between Implementation of Immersive Commerce and Customer Retention
H1c:	There is significant relationship between Implementation of Immersive Commerce and Trend Adaptation.

The following table showing the Multivariate tests of different constructs of Business Performance and its effect on Successful Implementation of Immersive Commerce.

Table 5.10

Multivariate Analysis

Multivariate Tests[a]

Effect		Value	F	Hypothesis df	Error df	Sig.
Intercept	Pillai's Trace	0.995	22696.655[b]	3.000	351.000	0.000
	Wilks' Lambda	0.005	22696.655[b]	3.000	351.000	0.000
	Hotelling's Trace	193.989	22696.655[b]	3.000	351.000	0.000
	Roy's Largest Root	193.989	22696.655[b]	3.000	351.000	0.000
SIIC	Pillai's Trace	.838	3.803	108.000	1059.000	.000

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	Wilks' Lambda	.306	4.720	108.000	1052.106	.000
	Hotelling's Trace	1.816	5.881	108.000	1049.000	.000
	Roy's Largest Root	1.553	15.226[c]	36.000	353.000	.000

a. Design: Intercept + SIIC

b. Exact statistic

c. The statistic is an upper bound on F that yields a lower bound on the significance level.

Table 5.11

Table showing the Test of Between-Subject Effects

Tests of Between-Subjects Effects

Source	Constructs	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	Sales Growth	26.794[a]	36	.744	6.464	.000
	Customer Retention	24.015[b]	36	.667	2.706	.000
	Trend Adaptation	34.050[c]	36	.946	3.576	.000
Intercept	Sales Growth	3165.401	1	3165.401	27490.523	0.000
	Customer Retention	2103.248	1	2103.248	8531.062	.000
	Trend Adaptation	2123.731	1	2123.731	8028.534	.000
SIIC	Sales Growth	26.794	36	.744	6.464	.000

	Customer Retention	24.015	36	.667	2.706	.000
	Trend Adaptation	34.050	36	.946	3.576	.000
Error	Sales Growth	40.646	353	.115		
	Customer Retention	87.029	353	.247		
	Trend Adaptation	93.377	353	.265		
Total	Sales Growth	8338.250	390			
	Customer Retention	5429.813	390			
	Trend Adaptation	5494.313	390			
Corrected Total	Sales Growth	67.440	389			
	Customer Retention	111.043	389			
	Trend Adaptation	127.426	389			
a. R Squared = .397 (Adjusted R Squared = .336)						
b. R Squared = .216 (Adjusted R Squared = .136)						
c. R Squared = .267 (Adjusted R Squared = .192)						

Hypotheses Testing Results

The overall MANOVA test evaluate whether the Successful Implementation of Immersive Commerce has a significant combined effect on the three constructs of business performance. The hypothesis is tested through Pillai's Trace, Wilks Lambda, Hotelling's Trace and Roys' Largest Root. The multivariate results were significant across all the indicators viz., Sales Growth, $F(36, 353) = 6.464$, $p < .001$, $R^2 = .397$; Customer Retention, $F(36, 353) = 2.706$, $p < .001$, $R^2 = .216$; and Trend Adaptation, $F(36, 353) = 3.576$, $p < .001$, $R^2 = .267$. This means

Successful Implementation of Immersive Commerce has significant role in determining various business performance simultaneously.

After MANOVA, the researcher was examined an univariate ANOVA to see which specific dependent variables are most significantly influenced through test of Between-Subject Effect.

Effect of Successful Implementation of Immersive Commerce on Sales Growth

The study reveals that the Sales Growth is a strong predictor of Successful Implementation of Immersive Commerce at its significant values, $F(36,353) = 6.464$, $p = 0.000$, $R^2 = .397$, Adjusted $R^2 = .336$. The Successful Implementation of Immersive Commerce explain 39.7% of the variance in Sales Growth. This is a Large effect Size (Hair et al., 2019). The retailers who focuss on Successful Implementation of Immersive Commerce will report higher perceived sales growth. Increase in sales strengthen retailers' belief that initiatives of Immersive Commerce will succeed in future. Its a long term strategy of the retailer in improving sales and thereby gain competitive advantage. This suggests that when Immersive tools lead to higher sales growth and revenue generation, retailer adopts Immersive Commerce as a valuable and sustainable strategic investment.

Effect of Customer Retention on Successful Implementation of Immersive Commerce

The study reveals that the Customer Retention is strategy of retailers in Successful Implementation of Immersive Commerce at its significant values, $F(36,353) = 2.706$, $p = 0.000$, $R^2 = .216$, Adjusted $R^2 = .136$. Around 21.6% of the variance in customer retention is explained by Successful Implementation of Immersive Commerce. This is a moderate effect. The retailer should develop the Immersive technologies more attractive for maintaining long-term relationships, repeat purchase intention of customer.

Effect of Trend Adaptation on Successful Implementation of Immersive Commerce

The results indicates that Successful Implementation of Immersive Commerce also influences Trend Adaptation. There is significant relationship with both and the F value represents 3.576, $p = 0.000$. $R^2 = .267$, Adjusted $R^2 = .192$, indicating that Trend adaptation is another predictor of

Business performance, being small but moderate effect. About 26.7% of variance in Trend Adaptation is explained by Successful Implementation of Immersive Commerce .The market trends are more likely to lead the success of Immersive Commerce. It acts as a strategy to enhance the technological knowledge and advancement of the firm.

Overall, The results show that greater perceived Implementation of Immersive Commerce is related with higher improvements in business performance, especially in sales growth.

5.10 Forecasting the Future Potentials of Immersive Commerce

5.10.2 Descriptive Statistics of Future Potentials

The following table shows the Descriptive Statistics of Future Potentials

Table 5.12

Descriptive Statistics of Future Potentials

Constructs	Factors	Mean	Std. Deviation	Rank
Innovation Capability	The team always experimenting with Immersive Technology	**4.4**	**0.49**	**2**
	Exploration of new Immersive Commerce innovations is active in the outlet.	**4.35**	**0.537**	**4**
	Innovation has important role in our Immersive strategy.	**4.47**	**0.51**	**3**
	Immersive Commerce adopts creative business thinking.	**4.41**	**0.491**	**1**
Growth Potentials	Immersive Commerce boosts long-term retail growth.	**4.37**	**0.483**	**2**
	Immersive Commerce opens up new revenue channels.	**4.31**	**0.472**	**4**

	Immersive Commerce foresee future Market Expansions	**4.38**	**0.481**	**1**
	The growth of Immersive Commerce looks promising.	**4.34**	**0.485**	**3**

5.10.3 Relationship between Retail characteristics with Future Potentials.

The relationship between retail characteristics and the future potentials of Immersive Commerce is very significant as it establishes how factors such as retil format, annual turnover, location and category of retail shape the future potentials of Immersive technology adoption in retail. Retailers with innovative digital infrastructure and high growth potentials have to leverage AR/VR-based Immersive experiences to differentiate their offerings and enhance customer engagement. It helps to identify which types of retailers are getting benefit from Immersive Commerce and what strategic measures that others may need to make competitive. In this context, forecasting the future potentials is essential part of studying the Successful Implementation of the Immersive Commerce.

Hypothesis is

H1: There is a significant relationship in Retailer attributes across Growth Potentials and Innovation Capability

The sub hypotheses are;

Table 5.13

Hypothesis Development

Hypotheses No	**Hypotheses**
H1a:	Retail format has significant influence on Innovation Capability
H1b:	Annual Turnover has significant impact on Innovation Capability
H1c:	Location has positive relationship with Innovation Capability

H1d:	Category of Retail has significant influence on Innovation Capability
H1e:	Retail format has positive influence on Growth Potentials
H1f:	Annual Turnover has significant impact on Growth Potentials
H1g:	Location has positive relationship with Growth Potentials
H1h:	Category of Retail has significant influence on Growth Potentials

Table 5.14

ANOVA – Retail format on Innovation capability

ANOVA					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	0.007	2	0.003	0.017	0.983
Within Groups	79.137	387	0.204		
Total	79.144	389			

The results states that there is no significant difference among these groups regarding the Retail format and Innovation Capability since the value is p-value is more than 0.05.

Table 5.15

ANOVA – Annual Turnover on Innovation Capability

ANOVA					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.617	4	.154	.757	.554
Within Groups	78.527	385	.204		
Total	79.144	389			

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The results states that there is no significant difference among these groups regarding the Annual Turnover and Innovation Capability since the value is p-value is more than 0.05.

Table 5.16

ANOVA – Location on Innovation capability

ANOVA					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	4.003	11	.364	1.830	.047
Within Groups	75.142	378	.199		
Total	79.144	389			

The results states that there is significant difference among these groups regarding the Location and Innovation Capability since the value is p-value is less than 0.05**.**

Table 5.17

Multiple Comparisons between Location and Innovation Capability

Multiple Comparisons						
Location		**Mean Difference (I-J)**	**Std. Error**	**Sig.**	**95% Confidence Interval**	
					Lower Bound	**Upper Bound**
Bengaluru	Mumbai	-.09188	.09667	.999	-.4098	.2260
	Delhi NCR	-.24966	.09190	.222	-.5519	.0526
	Hyderabad	-.00698	.10117	1.000	-.3397	.3257
	Pune	.09309	.11340	1.000	-.2798	.4660
	Chennai	-.10345	.10576	.998	-.4513	.2444
	Ahamedabad	.01692	.10576	1.000	-.3309	.3647
	Indore	.04006	.12193	1.000	-.3609	.4411

	Jaipur	-.20994	.11003	.754	-.5718	.1519
	Kochi	-.14049	.08663	.900	-.4254	.1444
	Coimbatore	.00951	.09078	1.000	-.2890	.3080
	Bhubaneswar	-.19100	.14797	.980	-.6776	.2956
Mumbai	Bengaluru	.09188	.09667	.999	-.2260	.4098
	Delhi NCR	-.15778	.10072	.920	-.4890	.1735
	Hyderabad	.08490	.10924	1.000	-.2744	.4442
	Pune	.18497	.12066	.931	-.2118	.5818
	Chennai	-.01157	.11351	1.000	-.3849	.3617
	Ahamedabad	.10880	.11351	.998	-.2645	.4821
	Indore	.13194	.12871	.997	-.2913	.5552
	Jaipur	-.11806	.11749	.998	-.5045	.2683
	Kochi	-.04861	.09593	1.000	-.3641	.2669
	Coimbatore	.10139	.09970	.997	-.2265	.4293
	Bhubaneswar	-.09912	.15360	1.000	-.6043	.4060
Delhi NCR	Bengaluru	.24966	.09190	.222	-.0526	.5519
	Mumbai	.15778	.10072	.920	-.1735	.4890
	Hyderabad	.24269	.10505	.471	-.1028	.5882
	Pune	.34276	.11687	.134	-.0416	.7271
	Chennai	.14621	.10948	.974	-.2138	.5063
	Ahamedabad	.26658	.10948	.385	-.0935	.6266
	Indore	.28973	.12517	.468	-.1219	.7014
	Jaipur	.03973	.11360	1.000	-.3339	.4133
	Kochi	.10917	.09113	.989	-.1905	.4089
	Coimbatore	.25917	.09508	.218	-.0535	.5719
	Bhubaneswar	.05867	.15065	1.000	-.4368	.5541
Hyderabad	Bengaluru	.00698	.10117	1.000	-.3257	.3397
	Mumbai	-.08490	.10924	1.000	-.4442	.2744
	Delhi NCR	-.24269	.10505	.471	-.5882	.1028
	Pune	.10007	.12429	1.000	-.3087	.5088

	Chennai	-.09648	.11737	1.000	-.4825	.2895
	Ahamedabad	.02389	.11737	1.000	-.3621	.4099
	Indore	.04704	.13212	1.000	-.3875	.4816
	Jaipur	-.20296	.12122	.879	-.6016	.1957
	Kochi	-.13351	.10047	.975	-.4639	.1969
	Coimbatore	.01649	.10407	1.000	-.3258	.3587
	Bhubaneswar	-.18402	.15647	.990	-.6986	.3306
Pune	Bengaluru	-.09309	.11340	1.000	-.4660	.2798
	Mumbai	-.18497	.12066	.931	-.5818	.2118
	Delhi NCR	-.34276	.11687	.134	-.7271	.0416
	Hyderabad	-.10007	.12429	1.000	-.5088	.3087
	Chennai	-.19655	.12806	.930	-.6177	.2246
	Ahamedabad	-.07618	.12806	1.000	-.4973	.3450
	Indore	-.05303	.14170	1.000	-.5190	.4130
	Jaipur	-.30303	.13160	.477	-.7358	.1298
	Kochi	-.23359	.11277	.644	-.6045	.1373
	Coimbatore	-.08359	.11599	1.000	-.4650	.2979
	Bhubaneswar	-.28409	.16464	.856	-.8256	.2574
Chennai	Bengaluru	.10345	.10576	.998	-.2444	.4513
	Mumbai	.01157	.11351	1.000	-.3617	.3849
	Delhi NCR	-.14621	.10948	.974	-.5063	.2138
	Hyderabad	.09648	.11737	1.000	-.2895	.4825
	Pune	.19655	.12806	.930	-.2246	.6177
	Ahamedabad	.12037	.12135	.998	-.2787	.5194
	Indore	.14352	.13567	.996	-.3027	.5897
	Jaipur	-.10648	.12508	.999	-.5178	.3049
	Kochi	-.03704	.10509	1.000	-.3826	.3086
	Coimbatore	.11296	.10854	.997	-.2440	.4699
	Bhubaneswar	-.08754	.15948	1.000	-.6120	.4369
Ahamedabad	Bengaluru	-.01692	.10576	1.000	-.3647	.3309

	Mumbai	-.10880	.11351	.998	-.4821	.2645
	Delhi NCR	-.26658	.10948	.385	-.6266	.0935
	Hyderabad	-.02389	.11737	1.000	-.4099	.3621
	Pune	.07618	.12806	1.000	-.3450	.4973
	Chennai	-.12037	.12135	.998	-.5194	.2787
	Indore	.02315	.13567	1.000	-.4230	.4693
	Jaipur	-.22685	.12508	.810	-.6382	.1845
	Kochi	-.15741	.10509	.941	-.5030	.1882
	Coimbatore	-.00741	.10854	1.000	-.3644	.3495
	Bhubaneswar	-.20791	.15948	.978	-.7324	.3166
Indore	Bengaluru	-.04006	.12193	1.000	-.4411	.3609
	Mumbai	-.13194	.12871	.997	-.5552	.2913
	Delhi NCR	-.28973	.12517	.468	-.7014	.1219
	Hyderabad	-.04704	.13212	1.000	-.4816	.3875
	Pune	.05303	.14170	1.000	-.4130	.5190
	Chennai	-.14352	.13567	.996	-.5897	.3027
	Ahamedabad	-.02315	.13567	1.000	-.4693	.4230
	Jaipur	-.25000	.13902	.818	-.7072	.2072
	Kochi	-.18056	.12135	.943	-.5796	.2185
	Coimbatore	-.03056	.12434	1.000	-.4395	.3784
	Bhubaneswar	-.23106	.17063	.971	-.7922	.3301
Jaipur	Bengaluru	.20994	.11003	.754	-.1519	.5718
	Mumbai	.11806	.11749	.998	-.2683	.5045
	Delhi NCR	-.03973	.11360	1.000	-.4133	.3339
	Hyderabad	.20296	.12122	.879	-.1957	.6016
	Pune	.30303	.13160	.477	-.1298	.7358
	Chennai	.10648	.12508	.999	-.3049	.5178
	Ahamedabad	.22685	.12508	.810	-.1845	.6382
	Indore	.25000	.13902	.818	-.2072	.7072
	Kochi	.06944	.10938	1.000	-.2903	.4292

	Coimbatore	.21944	.11270	.729	-.1512	.5901
	Bhubaneswar	.01894	.16234	1.000	-.5150	.5528
Kochi	Bengaluru	.14049	.08663	.900	-.1444	.4254
	Mumbai	.04861	.09593	1.000	-.2669	.3641
	Delhi NCR	-.10917	.09113	.989	-.4089	.1905
	Hyderabad	.13351	.10047	.975	-.1969	.4639
	Pune	.23359	.11277	.644	-.1373	.6045
	Chennai	.03704	.10509	1.000	-.3086	.3826
	Ahamedabad	.15741	.10509	.941	-.1882	.5030
	Indore	.18056	.12135	.943	-.2185	.5796
	Jaipur	-.06944	.10938	1.000	-.4292	.2903
	Coimbatore	.15000	.08999	.882	-.1460	.4460
	Bhubaneswar	-.05051	.14749	1.000	-.5356	.4345
Coimbatore	Bengaluru	-.00951	.09078	1.000	-.3080	.2890
	Mumbai	-.10139	.09970	.997	-.4293	.2265
	Delhi NCR	-.25917	.09508	.218	-.5719	.0535
	Hyderabad	-.01649	.10407	1.000	-.3587	.3258
	Pune	.08359	.11599	1.000	-.2979	.4650
	Chennai	-.11296	.10854	.997	-.4699	.2440
	Ahamedabad	.00741	.10854	1.000	-.3495	.3644
	Indore	.03056	.12434	1.000	-.3784	.4395
	Jaipur	-.21944	.11270	.729	-.5901	.1512
	Kochi	-.15000	.08999	.882	-.4460	.1460
	Bhubaneswar	-.20051	.14996	.974	-.6937	.2927
Bhubaneswar	Bengaluru	.19100	.14797	.980	-.2956	.6776
	Mumbai	.09912	.15360	1.000	-.4060	.6043
	Delhi NCR	-.05867	.15065	1.000	-.5541	.4368
	Hyderabad	.18402	.15647	.990	-.3306	.6986
	Pune	.28409	.16464	.856	-.2574	.8256
	Chennai	.08754	.15948	1.000	-.4369	.6120

	Ahamedabad	.20791	.15948	.978	-.3166	.7324
	Indore	.23106	.17063	.971	-.3301	.7922
	Jaipur	-.01894	.16234	1.000	-.5528	.5150
	Kochi	.05051	.14749	1.000	-.4345	.5356
	Coimbatore	.20051	.14996	.974	-.2927	.6937

The Post-hoc Tukey HSD results show that some locations such as Delhi NCR, Pune, Jaipur, and Kochi show mean differences when compared with other cities like Bengaluru or Mumbai. Theses differences are not large enough to be considered as meaningful. The confidence intervals for multiple comparisons overlap, further revealing that Innovation Capability levels remain relatively consistent across locations**.** Therefore**,** Location is not a factor influencing Innovation Capability in the Implementation of Immersive Commerce.

Table 5.18

ANOVA – Category of Retail on Innovation capability

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.531	5	.106	.519	.762
Within Groups	78.613	384	.205		
Total	79.144	389			

The results states that there is no significant difference among these groups regarding the Retail format and Innovation Capability since the value is p-value value is more than 0.05

Table 5.19

ANOVA – Retail format on Growth Potentials

	Sum of Squares	df	Mean Square	F	Sig.

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Between Groups	.004	2	.002	.010	.990
Within Groups	81.384	387	.210		
Total	81.388	389			

The results of the ANOVA states that there is no significant difference among these groups regarding the Retail format and Growth Potentials since the value is p-value is more than 0.05.

Table 5.20

ANOVA – Annual Turnover on Growth Potentials

ANOVA					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.447	4	.112	.531	.713
Within Groups	80.941	385	.210		
Total	81.388	389			

The results of the ANOVA states that there is no significant difference among these groups regarding the Annual Turnover and Growth Potentials since the value is p-value is more than 0.05.

Table 5.21

ANOVA – Location on Growth Potentials

ANOVA					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	4.740	11	.431	2.125	.018
Within Groups	76.648	378	.203		
Total	81.388	389			

12 The results of the ANOVA states that there is significant difference among these groups regarding the Location and Growth Potentials since the value is p-value is less than 0.05.

Table 5.22

Multiple Comparisons between Location and Innovation Capability

14

Multiple Comparisons						
Location		Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Bengaluru	Mumbai	-.10043	.09763	.997	-.4215	.2207
	Delhi NCR	-.24788	.09282	.245	-.5531	.0574
	Hyderabad	-.02001	.10218	1.000	-.3560	.3160
	Pune	.11233	.11453	.998	-.2643	.4890
	Chennai	-.08422	.10682	1.000	-.4355	.2671
	Ahamedabad	.03615	.10682	1.000	-.3151	.3874
	Indore	.07318	.12314	1.000	-.3318	.4782
	Jaipur	-.20112	.11112	.812	-.5666	.1643
	Kochi	-.16756	.08749	.749	-.4553	.1202
	Coimbatore	.02874	.09168	1.000	-.2728	.3303
	Bhubaneswar	-.21722	.14944	.952	-.7087	.2743
Mumbai	Bengaluru	.10043	.09763	.997	-.2207	.4215
	Delhi NCR	-.14745	.10173	.953	-.4820	.1871
	Hyderabad	.08042	.11033	1.000	-.2824	.4433
	Pune	.21275	.12186	.846	-.1880	.6135
	Chennai	.01620	.11464	1.000	-.3608	.3932
	Ahamedabad	.13657	.11464	.989	-.2404	.5136
	Indore	.17361	.12999	.974	-.2539	.6011
	Jaipur	-.10069	.11867	.999	-.4910	.2896
	Kochi	-.06713	.09689	1.000	-.3858	.2515

	Coimbatore	.12917	.10069	.981	-.2020	.4603
	Bhubaneswar	-.11679	.15513	1.000	-.6270	.3934
Delhi NCR	Bengaluru	.24788	.09282	.245	-.0574	.5531
	Mumbai	.14745	.10173	.953	-.1871	.4820
	Hyderabad	.22787	.10610	.589	-.1211	.5768
	Pune	.36020	.11804	.098	-.0280	.7484
	Chennai	.16365	.11057	.945	-.2000	.5273
	Ahamedabad	.28402	.11057	.301	-.0796	.6477
	Indore	.32106	.12642	.319	-.0947	.7368
	Jaipur	.04675	.11474	1.000	-.3306	.4241
	Kochi	.08032	.09204	.999	-.2224	.3830
	Coimbatore	.27661	.09603	.152	-.0392	.5924
	Bhubaneswar	.03066	.15215	1.000	-.4697	.5310
Hyderabad	Bengaluru	.02001	.10218	1.000	-.3160	.3560
	Mumbai	-.08042	.11033	1.000	-.4433	.2824
	Delhi NCR	-.22787	.10610	.589	-.5768	.1211
	Pune	.13233	.12553	.996	-.2805	.5452
	Chennai	-.06422	.11854	1.000	-.4541	.3256
	Ahamedabad	.05615	.11854	1.000	-.3337	.4460
	Indore	.09319	.13344	1.000	-.3457	.5320
	Jaipur	-.18112	.12243	.945	-.5838	.2215
	Kochi	-.14755	.10147	.952	-.4813	.1862
	Coimbatore	.04875	.10511	1.000	-.2969	.3944
	Bhubaneswar	-.19721	.15803	.985	-.7169	.3225
Pune	Bengaluru	-.11233	.11453	.998	-.4890	.2643
	Mumbai	-.21275	.12186	.846	-.6135	.1880
	Delhi NCR	-.36020	.11804	.098	-.7484	.0280
	Hyderabad	-.13233	.12553	.996	-.5452	.2805
	Chennai	-.19655	.12933	.934	-.6219	.2288
	Ahamedabad	-.07618	.12933	1.000	-.5015	.3492

	Indore	-.03914	.14312	1.000	-.5098	.4315
	Jaipur	-.31345	.13291	.437	-.7506	.1237
	Kochi	-.27988	.11389	.370	-.6544	.0947
	Coimbatore	-.08359	.11715	1.000	-.4688	.3017
	Bhubaneswar	-.32955	.16629	.706	-.8764	.2173
Chennai	Bengaluru	.08422	.10682	1.000	-.2671	.4355
	Mumbai	-.01620	.11464	1.000	-.3932	.3608
	Delhi NCR	-.16365	.11057	.945	-.5273	.2000
	Hyderabad	.06422	.11854	1.000	-.3256	.4541
	Pune	.19655	.12933	.934	-.2288	.6219
	Ahamedabad	.12037	.12256	.998	-.2827	.5234
	Indore	.15741	.13702	.992	-.2932	.6080
	Jaipur	-.11690	.12633	.999	-.5324	.2986
	Kochi	-.08333	.10614	1.000	-.4324	.2657
	Coimbatore	.11296	.10962	.997	-.2475	.4735
	Bhubaneswar	-.13300	.16107	1.000	-.6627	.3967
Ahamedabad	Bengaluru	-.03615	.10682	1.000	-.3874	.3151
	Mumbai	-.13657	.11464	.989	-.5136	.2404
	Delhi NCR	-.28402	.11057	.301	-.6477	.0796
	Hyderabad	-.05615	.11854	1.000	-.4460	.3337
	Pune	.07618	.12933	1.000	-.3492	.5015
	Chennai	-.12037	.12256	.998	-.5234	.2827
	Indore	.03704	.13702	1.000	-.4136	.4877
	Jaipur	-.23727	.12633	.772	-.6527	.1782
	Kochi	-.20370	.10614	.747	-.5528	.1454
	Coimbatore	-.00741	.10962	1.000	-.3679	.3531
	Bhubaneswar	-.25337	.16107	.918	-.7831	.2764
Indore	Bengaluru	-.07318	.12314	1.000	-.4782	.3318
	Mumbai	-.17361	.12999	.974	-.6011	.2539
	Delhi NCR	-.32106	.12642	.319	-.7368	.0947

	Hyderabad	-.09319	.13344	1.000	-.5320	.3457
	Pune	.03914	.14312	1.000	-.4315	.5098
	Chennai	-.15741	.13702	.992	-.6080	.2932
	Ahamedabad	-.03704	.13702	1.000	-.4877	.4136
	Jaipur	-.27431	.14041	.724	-.7361	.1875
	Kochi	-.24074	.12256	.717	-.6438	.1623
	Coimbatore	-.04444	.12558	1.000	-.4575	.3686
	Bhubaneswar	-.29040	.17233	.874	-.8572	.2764
Jaipur	Bengaluru	.20112	.11112	.812	-.1643	.5666
	Mumbai	.10069	.11867	.999	-.2896	.4910
	Delhi NCR	-.04675	.11474	1.000	-.4241	.3306
	Hyderabad	.18112	.12243	.945	-.2215	.5838
	Pune	.31345	.13291	.437	-.1237	.7506
	Chennai	.11690	.12633	.999	-.2986	.5324
	Ahamedabad	.23727	.12633	.772	-.1782	.6527
	Indore	.27431	.14041	.724	-.1875	.7361
	Kochi	.03356	.11047	1.000	-.3297	.3969
	Coimbatore	.22986	.11382	.680	-.1445	.6042
	Bhubaneswar	-.01610	.16396	1.000	-.5553	.5231
Kochi	Bengaluru	.16756	.08749	.749	-.1202	.4553
	Mumbai	.06713	.09689	1.000	-.2515	.3858
	Delhi NCR	-.08032	.09204	.999	-.3830	.2224
	Hyderabad	.14755	.10147	.952	-.1862	.4813
	Pune	.27988	.11389	.370	-.0947	.6544
	Chennai	.08333	.10614	1.000	-.2657	.4324
	Ahamedabad	.20370	.10614	.747	-.1454	.5528
	Indore	.24074	.12256	.717	-.1623	.6438
	Jaipur	-.03356	.11047	1.000	-.3969	.3297
	Coimbatore	.19630	.09089	.580	-.1026	.4952
	Bhubaneswar	-.04966	.14896	1.000	-.5395	.4402

Coimbatore	Bengaluru	-.02874	.09168	1.000	-.3303	.2728
	Mumbai	-.12917	.10069	.981	-.4603	.2020
	Delhi NCR	-.27661	.09603	.152	-.5924	.0392
	Hyderabad	-.04875	.10511	1.000	-.3944	.2969
	Pune	.08359	.11715	1.000	-.3017	.4688
	Chennai	-.11296	.10962	.997	-.4735	.2475
	Ahamedabad	.00741	.10962	1.000	-.3531	.3679
	Indore	.04444	.12558	1.000	-.3686	.4575
	Jaipur	-.22986	.11382	.680	-.6042	.1445
	Kochi	-.19630	.09089	.580	-.4952	.1026
	Bhubaneswar	-.24596	.15146	.899	-.7441	.2521
Bhubaneswar	Bengaluru	.21722	.14944	.952	-.2743	.7087
	Mumbai	.11679	.15513	1.000	-.3934	.6270
	Delhi NCR	-.03066	.15215	1.000	-.5310	.4697
	Hyderabad	.19721	.15803	.985	-.3225	.7169
	Pune	.32955	.16629	.706	-.2173	.8764
	Chennai	.13300	.16107	1.000	-.3967	.6627
	Ahamedabad	.25337	.16107	.918	-.2764	.7831
	Indore	.29040	.17233	.874	-.2764	.8572
	Jaipur	.01610	.16396	1.000	-.5231	.5553
	Kochi	.04966	.14896	1.000	-.4402	.5395
	Coimbatore	.24596	.15146	.899	-.2521	.7441

The Post-hoc Tukey HSD tests show that the statistically significant differences are not widely present between any of the retail locations as the Significance values are all more than 0.05. But, there are slightly mean difference in numbers in some cities like Delhi NCR and Pune are slightly higher than other cities, they are not so statistically significant. Also, all pair wise comparisons have shared confidence intervals, which justifies the fact no individual location has more or less Growth Potentials as compared to other locations. Hence, the levels of Growth Potential of retailers are relatively similar, indicating that the geographical location does not

purely affect the perception connection with the further development of the Immersive Commerce Implementation.

Table 5.23

ANOVA – Category of Retail and Growth Potentials

ANOVA					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.447	4	.112	.531	.713
Within Groups	80.941	385	.210		
Total	81.388	389			

The results states that there is no significant difference among these groups regarding the Annual Turnover and Growth Potentials since the value is p-value is more than 0.05.

5.11 Relationship among Positive Impact Factors and Successful Implementation of Immersive Commerce

The researcher pointed out the various factors and strategies to influence the Successful Implementation of Immersive Commerce. Implementation of Immersive Technology in retail outlets is a crucial one, which makes the customer better experience in purchasing and choosing of a product. The searching of new customer and retaining of customer is challenging to every retailer. Sales Growth, Trend adaptation and is also important. Innovative ideas and Growth potentials also play prominent role in building confidence of retailers to Immersive Commerce adoption. By considering all these factors, retailers have to take initiative in Immersive Commerce. So this study is relevant to identify whether there is a strong relationship between these Positive Impact Factors and Successful Implementation.

The study focussed on the first four objectives formulated by the researcher. Inorder to predict the relationship Covariance Based Structural Equation Modelling is adopted. So that, Exploratory Factory Analysis and Confirmatory Factor Analysis is conducted based on the statistical tools like SPSS and AMOS.

Exploratory Factor Analysis

Exploratory Factor Analysis (EFA) was conducted to identify the underlying factor structure among the measured variables. Following table No. shows Kaiser-Meyer-Olkin and Bartlett's Test.

Table 5.24

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.804
Bartlett's Test of Sphericity	Approx. Chi-Square	11189.103
	df	780
	Sig.	.000

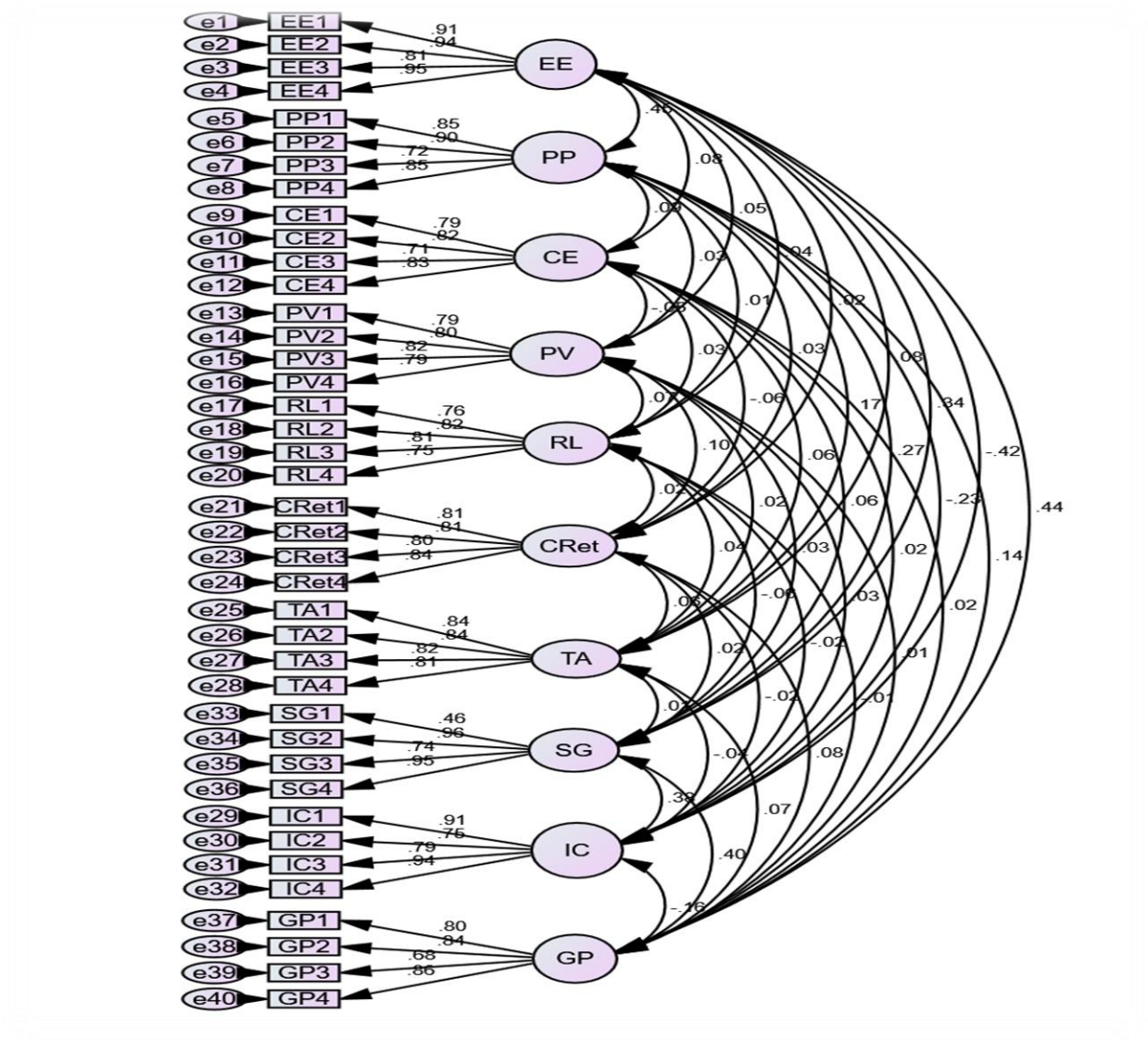
The suitability of the data for factor analysis was confirmed through the Kaiser–Meyer–Olkin (KMO) test, which exceeded the recommended value of 0.60, and Bartlett's Test of Sphericity, which was significant i.e., p-value is less than 0.05 implying correlations among items (Hair et al., 2019). Factors were extracted using Principal Component Analysis with Varimax rotation, and items with factor loadings above 0.5 were retained for interpretation (Field, 2018). The results show that items grouped into clear and meaningful factors, demonstrating good construct representation.

Confirmatory Factor Analysis (CFA)

The following figure shows the Confirmatory Factor Analysis

Figure 5.11

Confirmatory Measurement Model shows the relationship between Positive Impact factors that influence the successful implementation of Immersive Commerce



Confirmatory Factor Analysis (CFA) was conducted to validate the measurement model and reliability and consistency in underlying latent constructs. To assess the internal sampling adequacy of the model, several fit indices were examined. A good model fit is indicated by Chi-square to degrees of freedom ratio (χ^2/df) is less than 3, the Comparative Fit Index (CFI) and Tucker–Lewis Index (TLI) are exceed 0.90, and the Root Mean Square Error of Approximation (RMSEA) and Standardized Root Mean Square Residual (SRMR) are below 0.08 (Hu & Bentler, 1999; Kline, 2016). The results thus obtained must be under above threshold values, concluding that the measurement model fits the data.

Construct validity evaluated using convergent and discriminant validity.

Convergent Validity

Convergent validity was supported as all standardized factor loadings were above 0.50 and statistically significant ($p < .001$), the Average Variance Extracted (AVE) for each construct exceeded 0.50, and Composite Reliability (CR) values were above the recommended level of 0.70, indicating variance and internal consistency (Fornell & Larcker, 1981).

Table 5.25

Convergent Validity

Construct	Item	Factor Loading	CR	AVE
Experiential enhancement	EE1	0.911	0.95	0.82
	EE2	0.938		
	EE3	0.812		
	EE4	0.948		
Product Positioning	PP1	0.847	0.89	0.69
	PP2	0.896		
	PP3	0.72		
	PP4	0.852		
Customer Engagement	CE1	0.795	0.87	0.62
	CE2	0.821		
	CE3	0.707		
	CE4	0.832		
Perceived Value	PV1	0.787	0.88	0.64
	PV2	0.804		
	PV3	0.824		
	PV4	0.794		
Reliability	RL1	0.765	0.87	0.62
	RL2	0.82		
	RL3	0.809		
	RL4	0.753		

Customer Retention	CRet1	0.814	0.89	0.67
	CRet2	0.813		
	CRet3	0.8		
	CRet4	0.844		
Trend Adaptation	TA1	0.837	0.9	0.68
	TA2	0.836		
	TA3	0.82		
	TA4	0.813		
Sales Growth	SG1	0.500	0.87	0.64
	SG2	0.961		
	SG3	0.735		
	SG4	0.949		
Innovation Capability	IC1	0.913	0.91	0.73
	IC2	0.752		
	IC3	0.791		
	IC4	0.945		
Growth Potentials	GP1	0.805	0.88	0.64
	GP2	0.84		
	GP3	0.681		
	GP4	0.865		

The above table indicates that in convergent validity, all the constructs is under acceptable threshold with factor loadings ranging from 0.500 to 0.961. Each construct has composite reliability (CR) is varies from 0.825 to 0.947, which exceed the recommended threshold of 0.70 indicating strong internal consistency and construct reliability. Average Variance Extracted (AVE) which is above 0.5, ranging from 0.565 to 0.817. So, all the constructs are satisfied.

Discriminant Validity

Discriminant validity was analysed as the square root of AVE for each construct was greater than the inter-construct correlations, demonstrating that each construct is distinct (Hair et al., 2019).

Table 5.26

Discriminant Validity

Construct	EE	PP	CE	PV	RL	CRet	TA	SG	IC	GP
EE	**0.904**									
PP	0.447	**0.831**								
CE	0.077	0.089	**0.782**							
PV	0.047	0.03	-0.053	**0.804**						
RL	0.036	0.014	0.028	0.075	**0.794**					
CRet	0.022	0.032	-0.063	0.104	0.018	**0.818**				
TA	0.076	0.172	0.058	0.023	0.037	0.06	**0.823**			
SG	0.341	0.266	0.064	0.03	-0.056	0.023	0.015	**0.752**		
IC	-0.419	-0.234	0.018	0.034	-0.021	-0.021	-0.044	0.384	**0.862**	
GP	0.44	0.141	0.022	0.005	-0.008	0.076	0.072	0.396	-0.159	**0.785**

The bold diagonal values represent the √AVE for each construct. The measurement model indicates excellent discriminant validity across all constructs. Here the square roots of AVE varies from 0.752 – 0.904 and inter-construct correlations ranging from –0.419 to 0.447.

Model Fit Indices of CFA Model

The table below shows the model fit indices of Confirmatory Factor Analysis of ten constructs and forty variables under positive impact factors, which indicates that all the fit indices are satisfied.

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Table 5.27

Model fit Indices

Type	Fit Index	Obtained Value	Acceptable Threshold
Absolute Fit	RMR (Root Mean Square Residual)	0.017	< 0.05

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	GFI (Goodness of Fit Index)	0.859	≥ 0.80
	AGFI (Adjusted Goodness of Fit Index)	0.833	≥ 0.80
	RMSEA (Root Mean Square Error of Approximation)	0.054	≤ 0.05 (good)
Incremental Fit	NFI (Normed Fit Index)	0.872	≥ 0.80
	RFI (Relative Fit Index)	0.857	≥ 0.80
	IFI (Incremental Fit Index)	0.928	≥ 0.90
	TLI (Tucker–Lewis Index)	0.918	≥ 0.90
	CFI (Comparative Fit Index)	0.927	≥ 0.90
Parsimonious Fit	PNFI (Parsimony Normed Fit Index)	0.777	≥ 0.50
	PCFI (Parsimony Comparative Fit Index)	0.826	≥ 0.50

Overall, the CFA results indicate that the measurement model confirms strong reliability, convergent validity, and discriminant validity and model fit indices value confirming that the constructs used in the study are statistically sound and appropriate for subsequent structural modeling.

Structural Equation Modelling

Structural Equation Modelling is a statistical approach that tests theoretical models by estimating direct and indirect relationships among variables while accounting for measurement error and model complexity. (Tabachnick & Fidell, 2019). The Structural Equation Modelling is adopted to establish a causal relationship between Positive Impact factor and Successful Implementation of Immersive Commerce.

Hypotheses Development

The Successful Implementation of the Immersive Commerce is the central outcome of the study, where the researcher analyse positive factors are the main part of the study. All the positive factors combine to facilitate the core outcome of the study. The factors constitute opportunities, customer loyalty, business performance and future potentials is hypothesized in this section.

The main hypotheses for the study is;

H1:There is causal relationship between Successful Implementation of Immersive Commerce with Opportunities, Customer Loyalty, Business Performance and Future Potentials of Immersive Commerce.

Sub Hypotheses is shown as below

Table 5.28

Hypothesis Development

Sl. No.	Hypothesis Statement
H1	Experiential Enhancement has a positive and significant effect on the Successful Implementation of Immersive Commerce.
H2	Product Positioning has a significant effect on the Successful Implementation of Immersive Commerce.
H3	Perceived Value has a positive and significant effect on the Successful Implementation of Immersive Commerce.
H4	Sales Growth has a positive and significant effect on the Successful Implementation of Immersive Commerce.
H5	Innovation Capability has a positive and significant effect on the Successful Implementation of Immersive Commerce.
H6	Innovation Capability has a significant effect on Reliability in the Implementation of Immersive Commerce.
H7	Perceived Value has a significant effect on Experiential Enhancement in Immersive Commerce settings.
H8	Experiential Enhancement has a significant effect on Product Positioning in Immersive retail environments.
H9	Innovation Capability has a positive and significant effect on Perceived Value among retail customers.
H10	Growth Potentials have a significant effect on Sales Growth in Immersive Commerce-based retail operations.

H11	Product Positioning has a positive and significant effect on Sales Growth in Immersive Commerce adoption.
H12	Growth Potentials have a positive and significant effect on Innovation Capability in Immersive retail strategy.
H13	Sales Growth has a positive and significant effect on Experiential Enhancement for Immersive shopping environments.
H14	Perceived Value has a positive and significant effect on Growth Potentials in Immersive retail models.
H15	Sales Growth has a significant effect on Growth Potentials in Immersive Commerce adoption.
H16	Innovation Capability has a significant effect on Growth Potentials in Immersive Commerce Implementation.

Structural Equation Modelling

In Structural Equation Modelling, the researcher indicates the relationship among Positive Impact Factor and Successful Implementation of Immersive Commerce. The Structural Equation Modelling tests the pathways, direct and indirect confirming that how all the positive impact factors influence the Successful Implementation of Immersive Commerce. The variables used in the models are;

a. Observed/endogenous variables

Experiential Enhancement

Perceived Value

Product Positioning

Innovation Capability

Sales Growth

Growth Potentials

Reliability

Successful Implementation of Immersive Commerce

b. Observed, exogenous variables

Customer Engagement

Customer Retention

Trend Adaptation

c. Unobserved, exogenous variables

e2 – error term of Product Positioning

e3 – error term of Perceived value

e5 – error term of Reliability

e4 – error term of Sales Growth

e6 - error term of Innovation Capability

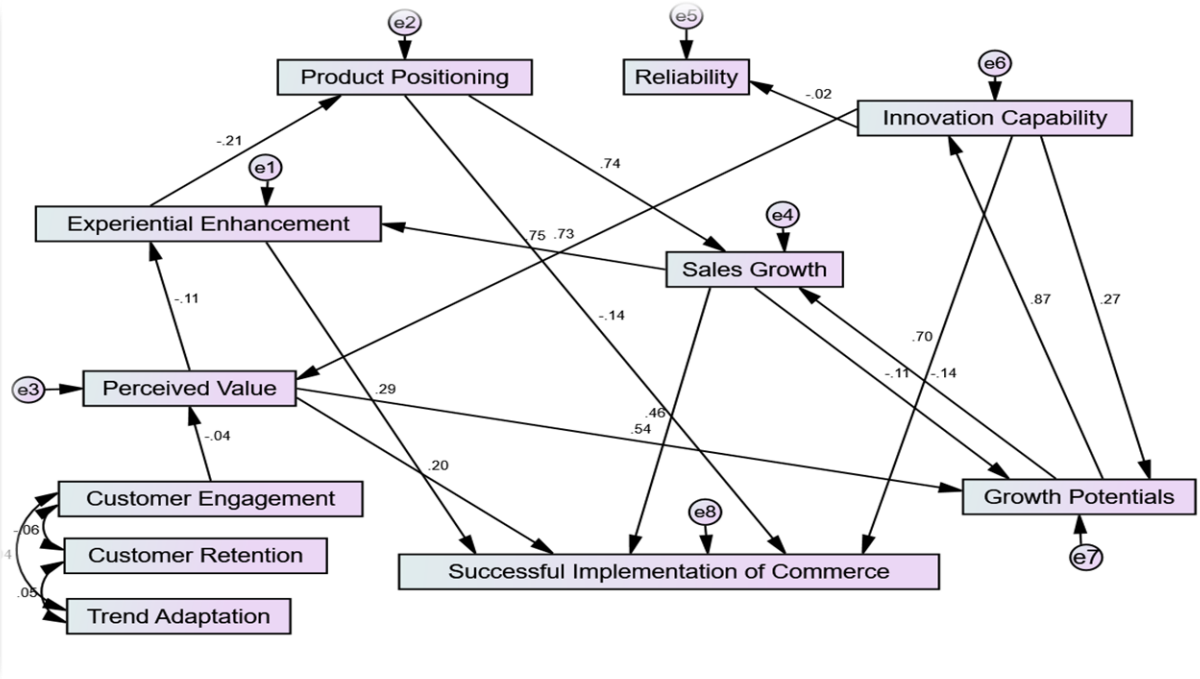
e7 - error term of Growth Potentials

e8 - error term of Successful Implementation of Immersive Commerce

e1 - error term of Experimental Enhancement

Figure 5.12

Structural Equation Modelling



Variable count in the Structural Equation Modelling is shown in the table given below

Table 5.29

Variable Count

Number of variables in your model	19
Number of observed variables	11
Number of unobserved variables	8
Number of exogenous variables	11
Number of endogenous variables	8

Results of Hypotheses Testing

The below table shows the Hypotheses Testing results indicating the path estimates, Standard error of estimates, Critical value and Significant values.

Table 5.30

Hypothesis Testing Results

Hypothesis Statement	**Exogenous Variable**	**Endogenous Variable**	**Estimate**	**S.E.**	**C.R.**	**P-value**	**Std. Estimate (β)**	**Result**
Experiential Enhancement → Successful Implementation of Immersive Commerce	EE	SIIC	0.182	0.022	8.267	***	0.287	Supported
Product Positioning → Successful Implementation of Immersive	PP	SIIC	-0.095	0.023	-4.191	***	-0.14	Supported

Commerce								
Perceived Value → Successful Implementation of Immersive Commerce	PV	SIIC	0.154	0.051	3.017	0.003	0.198	Supported
Sales Growth → Successful Implementation of Immersive Commerce	SG	SIIC	0.29	0.027	10.64	***	0.461	Supported
Innovation Capability → Successful Implementation of Immersive Commerce	IC	SIIC	0.447	0.043	10.51	***	0.701	Supported
Innovation Capability → Reliability	IC	RL	-0.022	0.058	-0.379	0.705	-0.019	Not Supported
Perceived Value → Experiential Enhancement	PV	EE	-0.137	0.045	-3.001	0.003	-0.111	Supported

Experiential Enhancement → Product Positioning	EE	PP	-0.195	0.135	-1.44	0.15	-0.209	Not Supported
Innovation Capability → Perceived Value	IC	PV	0.594	0.051	11.55	***	0.729	Supported
Growth Potentials → Sales Growth	GP	SG	-0.142	0.041	-3.451	***	-0.142	Supported
Product Positioning → Sales Growth	PP	SG	0.793	0.066	11.98	***	0.736	Supported
Growth Potentials → Innovation Capability	GP	IC	0.859	0.041	21.14	***	0.868	Supported
Sales Growth → Experiential Enhancement	SG	EE	0.75	0.061	12.38	***	0.753	Supported
Perceived Value → Growth Potentials	PV	GP	0.668	0.148	4.511	***	0.539	Supported
Sales Growth → Growth Potentials	SG	GP	-0.105	0.021	-5.054	***	-0.105	Supported
Innovation Capability → Growth	IC	GP	0.275	0.142	1.942	0.052	0.272	Marginally Supporte

Potentials								d

The following descriptions explains the results of each hypotheses testing through Structural Equation Modellling

Effect of Experiential Enhancement on Successful Implementation of Immersive Commerce

85 The results of the structural model indicate that Experiential Enhancement has a positive impact on the Successful Implementation of Immersive Commerce **,** with an unstandardized coefficient (B) = 0.182**,** standardized coefficient (β) = 0.287, and p < .001. This indicates that improving the experience of Immersive retail contribute to the effective Implementation of Immersive Commerce strategies. This significant path demonstrates that when retailers create enjoyable, engaging, and emotional Immersive experiences customers are more likely to encompasses such technologies and continue interacting with them. This finding aligns with the theory experiential marketing, which tends to customers' affective and cognitive engagement with digital platforms strengthens brand attachment and loyalty. (Schmitt, 1999).

Effect of Product Positioning on Successful Implementation of Immersive Commerce

The study indicates that Product Positioning (PP**)** has a negative but statistically significant effect on the Successful Implementation of Immersive Commerce, with a standardized coefficient (β) = -0.140 and unstandardized coefficient (B) = -0.095, and p < .001**.** The negative coefficient represents the reverse relationship that suggests that the Immersive settings product positioning either inefficiently result in the hampering of the Successful Implementation of the Immersive Commerce

Effect of Perceived Value on Successful Implementation of Immersive Commerce.

Based on an unstandardised coefficient (B) = 0.154, standardised coefficient (B) = 0.198, and p =.003 the outcomes indicate that Perceived Value (PV) positively and significantly influences

the Successful Implementation of Immersive Commerce. This study indicates that the Implementation of Immersive retail technologies is more effective in the case when customers consider that such technologies are valuable, beneficial, and justify their efforts. Being a determinant of behavioural intention and satisfaction, perceived value depicts the consumer analysis of bargain between the advantages and expenses, such as time, effort, and trust. The increased perceived value enhances the Implementation results, as it can motivate customers to use Immersive shopping platforms more often, virtually test the products, and make informed purchases.

Effect of Sales Growth on Successful Implementation of Immersive Commerce

The results of the structural equation model show that Sales Growth has a positive and highly significant effect on the Successful Implementation of Immersive Commerce (SIIC), with an unstandardized coefficient (B) = 0.290, standardized coefficient (β) = 0.461, and $p < .001$. This indicates that an increase in Sales Growth resulting from Immersive retail directly contributes to the Successful Implementation of Immersive Commerce. The high standardized coefficient indicates that sales growth is a reinforcing mechanism that validates the execution of Immersive technologies. This means that when customers engage with Immersive features, their purchase intentions strengthen, which leads better sales growth.

The hypothesis is supported, confirming that sales growth significantly influences the Successful Implementation of Immersive Commerce

Effect of Innovation Capability on Successful Implementation of Immersive Commerce

The analysis reveals that Innovation Capability has a very strong positive and statistically significant impact on the Successful Implementation of Immersive Commerce (SIIC), with an unstandardized coefficient (B) = 0.447, standardized coefficient (β) = 0.701, and $p < .001$. This shows that retail with higher innovation capability are more Successful in implementing Immersive Commerce . Innovation capability refers to an capacity of the firm to generate and execute new ideas, technologies, and processes to develop products and services. (Lawson & Samson, 2001; Guan & Ma, 2003). Among all tested variables, there is a high standardized

coefficient which confirms that innovation capability is the most influencing factor of Immersive Commerce

Thus, confirming that innovation capability significantly and positively influences the Successful Implementation of Immersive Commerce, making it the most vital driver of sustainable competitive advantage in digital retail transformation.

Effect of Perceived Value on Experiential Enhancement

The study reveals that Perceived Value has a negative yet statistically significant effect on Experiential Enhancement (EE)**,** with an unstandardized coefficient (B) = -0.137**,** standardized coefficient (β) = -0.111**,** and p = .003**.** This inverse relationship signifies that as consumers' perceived value of Immersive Commerce increases, the marginal impact of experiential enhancements may decrease. The firm must concentrate on the saturation point, where no further sensory or emotional satisfaction is attached to Immersive features. The hypothesis is supported**,** hence it is confirming that perceived value significantly influences experiential enhancement, even though the relationship is negatively directed.

Effect of Experiential Enhancement on Product Positioning

The study reveals that the Experiential Enhancement has a negative and statistically insignificant effect on Product Positioning with an unstandardized coefficient (B) = -0.195**,** standardized coefficient (β) = -0.209**,** and p = .150. This means that enhanced and interactive Immersive experience does not improve the product positioning. The product positioning is a strategy taken by the retailers in improving the customer's perception towards the product. Both experiential enhancement and Product Positioning is complementary to each other. Hence the hypothesis is not supported, indicating that experiential enhancement does not significantly contribute to improved product positioning in Immersive Commerce technologies.

Effect of Innovation Capability on Perceived Value

7 The analysis indicates that **Innovation Capability (IC)** has a **strong positive and statistically significant effect** on **Perceived Value (PV)**, with an **unstandardized coefficient (B) = 0.594**,

standardized coefficient (β) = 0.729, and **p < .001**. This shows that firms possessing high levels of technological and creative innovation are better equipped to deliver Immersive experiences that customers perceive as valuable and meaningful. The strong standardized coefficient (β = 0.729) highlights that innovation capability is one of the most powerful predictors of perceived value in the Immersive retail environment. This is because innovation drives advancements in system usability, personalization, and realism—all of which enhance consumer perceptions of convenience, enjoyment, and reliability.

The significance of this relationship (p < .001) indicates that innovation directly translates into perceived consumer benefit. Retailers with innovative capabilities can introduce AR/VR tools that simulate physical interactions, provide instant information, and create emotionally satisfying experiences, all of which increase perceived worth. In the Indian retail context, where Immersive Commerce is still gaining traction, innovation serves as the foundation for building consumer trust and value recognition. Technological creativity allows firms to differentiate their offerings and deliver superior user experiences that go beyond mere novelty. Furthermore, the positive relationship between innovation capability and perceived value demonstrates the strategic importance of innovation as both an operational and marketing asset. Firms that continually upgrade their Immersive platforms and integrate advanced digital features (e.g., AI-driven customization or virtual try-ons) can reinforce customer perceptions of quality and modernity. Therefore, **H9 is strongly supported**, confirming that higher innovation capability leads to greater perceived value, thereby strengthening consumers' willingness to adopt and engage with Immersive Commerce technologies.

H10: Effect of Growth Potential on Sales Growth

The SEM analysis reveals that **Growth Potential (GP)** has a **negative but statistically significant effect** on **Sales Growth (SG)**, with an **unstandardized coefficient (B) = -0.142**, **standardized coefficient (β) = -0.142**, and **p < .001**. The negative direction of this relationship suggests that although firms perceive high potential for growth in Immersive Commerce, this potential does not necessarily translate into immediate sales increases. In fact, during the early stages of Immersive Commerce Implementation, investments in technology, infrastructure, and staff training may temporarily suppress short-term sales performance due to high initial costs and

adaptation challenges. This finding underscores the **lag effect** often observed between technological innovation and financial return, where firms must first build capability and consumer awareness before realizing measurable sales benefits.

The significance of the relationship ($p < .001$) indicates that growth potential is indeed linked to sales outcomes, but in an inverse manner—possibly reflecting market maturity effects or resource reallocation during scaling phases. Retailers focusing on Immersive Commerce expansion may divert resources from traditional sales channels to support innovation, which can temporarily affect short-term revenue performance. In the Indian retail context, this finding is particularly relevant as many firms are in the transitional phase of adopting Immersive technologies, where the potential for future growth is recognized but not yet fully monetized. However, in the long run, this strategic investment is expected to yield substantial returns once consumer familiarity and adoption rates increase. The result also highlights the importance of managing expectations—recognizing that early-stage Immersive investments are primarily growth enablers rather than immediate profit drivers. Therefore, **H10 is supported**, indicating that while growth potential significantly affects sales growth, the relationship is negative due to transitional and developmental phases inherent in Immersive Commerce adoption.

H11: Effect of Product Positioning on Sales Growth

58

The results indicate that **Product Positioning (PP)** has a **strong positive and highly significant effect** on **Sales Growth (SG)**, with an **unstandardized coefficient (B) = 0.793**, **standardized coefficient (β) = 0.736**, and **p < .001**. This finding confirms that well-designed and strategically managed product positioning within Immersive environments significantly drives sales growth. When products are visually appealing, clearly categorized, and contextually presented in AR/VR settings, consumers are more likely to explore, interact, and make purchase decisions. The strong positive β value highlights that effective product positioning enhances product visibility, brand recall, and purchase intent, resulting in improved sales performance. This result demonstrates that Immersive Commerce not only enhances customer experience but also contributes directly to tangible business outcomes such as revenue growth and market expansion.

The significance level ($p < .001$) confirms that this relationship is robust and consistent. Effective product positioning in Immersive environments enhances consumers' perceived control, trust, and satisfaction by simplifying decision-making processes. In the Indian retail scenario, where consumers are highly diverse in preferences and digital literacy levels, intuitive product positioning within Immersive applications is crucial for reducing shopping complexity. Retailers who use data-driven visualization, 3D modeling, and contextual recommendations can effectively replicate the advantages of in-store displays in virtual form. Moreover, Immersive product positioning supports emotional connection and storytelling, creating differentiated experiences that drive repeat purchases. This finding also implies that Immersive Commerce platforms must integrate design thinking and marketing strategy to ensure that visual engagement aligns with sales objectives. Therefore, **H11 is supported**, confirming that clear, appealing, and strategically designed product positioning in Immersive environments significantly enhances sales growth, reinforcing its importance as a critical factor for Successful Immersive retail performance.

H12: Effect of Growth Potential on Innovation Capability

The analysis demonstrates that **Growth Potential (GP)** has a **very strong positive and statistically significant effect** on **Innovation Capability (IC)**, with an **unstandardized coefficient (B) = 0.859**, **standardized coefficient (β) = 0.868**, and **p < .001**. This exceptionally high coefficient indicates that firms perceiving high growth opportunities in the Immersive Commerce sector are also the ones most actively developing their innovation capabilities. The strong standardized value ($\beta = 0.868$) suggests that perceived market potential acts as a catalyst for innovation, motivating firms to invest in research, technological infrastructure, and creative experimentation. The significance ($p < .001$) confirms that growth potential is not merely an aspirational construct but a practical driver of technological advancement within the Immersive retail ecosystem.

This finding underscores the strategic interdependence between innovation and future growth expectations. When organizations anticipate future expansion or competitive advantage through Immersive technologies, they are more likely to enhance their innovation capacity by allocating resources toward R&D, digital upskilling, and platform development. In the Indian retail context,

this relationship is particularly important as the sector undergoes digital transformation driven by younger consumers and rising e-Commerce adoption. Retailers viewing Immersive Commerce as a long-term growth avenue are investing proactively in innovation to capture early mover advantage. This process creates a **feedback loop**—where innovation fuels competitiveness, and competitiveness reinforces growth potential. Moreover, this relationship implies that managerial vision and market foresight are critical for sustaining innovation intensity. Therefore, **H12 is supported**, confirming that higher growth potential significantly and positively drives innovation capability, establishing it as a key enabler of technological readiness and organizational competitiveness in Immersive Commerce.

H13: Effect of Sales Growth on Experiential Enhancement

The SEM results show that **Sales Growth (SG)** has a **strong positive and highly significant effect** on **Experiential Enhancement (EE)**, with an **unstandardized coefficient (B) = 0.750**, **standardized coefficient (β) = 0.753**, and **p < .001**. This indicates that as retail sales improve through Immersive Commerce initiatives, firms tend to invest more in developing enhanced experiential features to sustain and expand their success. The high standardized coefficient (β = 0.753) confirms that a reinforcing relationship exists between financial growth and experiential quality, suggesting that sales performance provides the necessary resources and strategic confidence for retailers to further enhance Immersive customer experiences. The significant p-value establishes that this relationship is statistically robust and consistent across the sample.

This finding emphasizes that financial success and experiential improvement are mutually reinforcing dimensions of Immersive Commerce. When Immersive technologies drive higher customer conversions and revenue, firms can reinvest profits into upgrading AR/VR infrastructure, refining interface designs, and expanding experiential content. This cyclical relationship strengthens both user engagement and brand differentiation. In the Indian retail context, where the digital ecosystem is rapidly expanding, rising sales through Immersive Commerce reflect consumers' growing acceptance of virtual shopping experiences. Firms achieving sales gains from Immersive strategies are more motivated to offer richer, more interactive, and emotionally appealing experiences to retain customers. The result highlights that financial growth not only validates Immersive technology but also enables continuous

experiential innovation. Therefore, **H13 is supported**, confirming that sales growth has a positive and significant impact on experiential enhancement, reflecting a strategic synergy between business performance and experience quality.

H14: Effect of Perceived Value on Growth Potential

The findings reveal that **Perceived Value (PV)** has a **positive and significant effect** on **Growth Potential (GP)**, with an **unstandardized coefficient (B) = 0.668**, **standardized coefficient (β) = 0.539**, and **p < .001**. This demonstrates that when consumers perceive Immersive Commerce systems as valuable and beneficial, it positively shapes the retailer's growth prospects in the Immersive Commerce domain. The positive coefficient indicates that perceived value is a strong psychological and market indicator of long-term scalability and business expansion. Retailers offering Immersive shopping experiences that deliver high utility, enjoyment, and emotional satisfaction are better positioned to attract and retain customers, thereby improving their market potential and brand equity. The significant p-value ($p < .001$) confirms that this relationship is statistically reliable and holds strong implications for strategic decision-making.

This finding underscores the fact that customer perception and business growth are deeply interconnected. In Immersive Commerce, perceived value reflects how effectively technology meets or exceeds customer expectations through personalized experiences and credible product representation. Higher perceived value leads to greater customer trust, advocacy, and loyalty—all of which contribute to sustainable growth potential. For Indian retailers, this insight is crucial as the market transitions toward experience-driven Commerce. The more consumers recognize the tangible and emotional benefits of Immersive shopping, the more likely retailers are to experience growth in both customer base and market share. Moreover, perceived value acts as a mediating variable linking innovation capability and growth potential, suggesting that innovation must translate into customer-recognized value to be commercially viable. Hence, **H14 is supported**, confirming that perceived value positively and significantly enhances growth potential by fostering consumer trust and long-term engagement in Immersive Commerce systems.

H15: Effect of Sales Growth on Growth Potential

The analysis indicates that **Sales Growth (SG)** has a **negative but statistically significant effect** on **Growth Potential (GP)**, with an **unstandardized coefficient (B) = -0.105**, **standardized coefficient (β) = -0.105**, and **p < .001**. The negative direction of this relationship suggests that while Immersive Commerce initiatives drive immediate sales growth, rapid expansion may temporarily constrain perceived future growth potential. This could occur when firms prioritize short-term revenue gains over long-term strategic investments, leading to temporary resource saturation. The significant p-value ($p < .001$) confirms that the relationship is meaningful and reflects transitional challenges commonly observed in technology adoption cycles.

This finding highlights a dynamic trade-off between short-term performance and long-term scalability. During the early phase of Immersive Commerce Implementation, retailers may experience strong sales surges due to novelty and customer curiosity; however, maintaining this momentum requires continued innovation and system enhancement. Without reinvestment, the perceived potential for further growth may decline as the market begins to stabilize. In the Indian context, where Immersive Commerce is still an emerging trend, firms focusing solely on sales metrics may overlook the strategic need to strengthen infrastructure, content development, and technological capacity for sustained growth. The result serves as a cautionary insight for managers to reinvest a portion of sales revenue into long-term innovation and experience optimization. Therefore, **H15 is supported**, indicating that while sales growth significantly affects growth potential, the negative relationship reflects the importance of balancing short-term profitability with sustained technological and market development in Immersive Commerce strategies.

H16: Effect of Innovation Capability on Growth Potential

7

The SEM results demonstrate that **Innovation Capability (IC)** has a **positive and marginally significant effect** on **Growth Potential (GP)**, with an **unstandardized coefficient (B) = 0.275**, **standardized coefficient (β) = 0.272**, and **p = .052**. Although the significance level is slightly above the conventional threshold, the positive direction indicates that firms with higher innovation capability tend to exhibit greater growth potential. This relationship highlights that

innovation acts as a strategic enabler, empowering firms to anticipate and exploit future market opportunities in Immersive Commerce. Innovative firms are more likely to adopt emerging technologies, develop creative retail solutions, and respond quickly to shifting consumer behaviors, all of which strengthen long-term growth trajectories.

While the p-value (.052) suggests moderate significance, the strong β value (.272) reflects a meaningful relationship in practical terms. In the context of Indian retailing, this result is especially relevant, as innovation capability determines how well firms adapt to technological disruption and consumer demand for enhanced experiences. Firms that continuously innovate can maintain competitiveness by introducing new Immersive formats, improving operational efficiency, and enhancing customer satisfaction. Furthermore, innovation capability fosters organizational agility, allowing firms to identify and capture growth opportunities ahead of competitors. Therefore, even though the statistical significance is marginal, the positive relationship between innovation capability and growth potential reinforces the notion that innovation is foundational for long-term scalability. Hence, **H16 is partially supported**, indicating that firms with stronger innovation capabilities exhibit higher growth potential, emphasizing innovation's crucial role in driving the future evolution of Immersive Commerce.

5.12 Conclusion

This chapter comprehensively examined the positive impact factors influencing the Successful Implementation of Immersive Commerce in the Indian retail sector. The findings clearly demonstrate that Immersive Commerce is not merely a technological enhancement but a strategic driver of experiential value creation, business performance improvement, and long-term growth orientation. Retailers strongly perceive experiential enhancement, perceived value, sales growth, and innovation capability as critical enablers of Successful Immersive Commerce Implementation, with innovation capability emerging as the most influential determinant. The results further reveal that Immersive Commerce contributes significantly to sales growth and competitive positioning, while also reinforcing experiential investments through a positive feedback loop between performance and experience enhancement.

At the same time, the study highlights important transitional dynamics, such as the short-term trade-offs between growth potential and immediate sales outcomes, underscoring Immersive Commerce as a long-term strategic investment rather than a quick-return initiative. The structural equation modelling results confirm that the Successful Implementation of Immersive Commerce is shaped by a complex interplay of opportunities, customer value perceptions, business performance outcomes, and future-oriented innovation strategies. Overall, this chapter provides strong empirical evidence that retailers who strategically invest in innovation, experiential quality, and value-driven Immersive solutions are better positioned to achieve sustainable competitive advantage and Successful Immersive Commerce adoption in the evolving Indian retail landscape.

CHAPTER 6

ANALYSIS OF NEGATIVE IMPACT FACTORS INFLENCING THE IMPLEMENTATION OF IMMERSIVE COMMERCE

6.1 Introduction

Success of Immersive Commerce implementation is depends not only the positive impact factors like its opportunities, customer loyalty, business performance and future potentials, but some negative impact factors also. The researcher clearly defines about the negative factors or the

hindering factors that negatively affect the Successful Implementation of the Immersive Commerce. This pull factors is referred as Negative Impact Factors.

Negative Impact Factors are those factors that lead to weaken the confidence level of retailers for the effective execution of Immersive Commerce. It reduces and hinders the long term adoption. High Implementation and maintenance cost are affected by the retailers, especially small and medium stores, in investing in Immersive Commerce. Technological illiteracy and Infrastructural hindrance have influence on retailer's dissatisfaction. Other negative impact factors such as security and privacy concerns and inclusivity significantly influence the success of Immersive Commerce Implementation.

Consumer readiness plays a vital role that if a customer is unfamiliar or uncomfortable with Immersive features offered by the retailer, they may consider as unnecessary or complex, thus decreasing the acceptance. Security and privacy concerns regarding data security, data tracking, biometric recognition, and personalized Immersive data also restrict the reliability and trust in adoption. Operational risks also lowering its smooth Implementation. Inclusivity including lack of accessibility for senior citizens or physically or mentally challenged retailers can disrupt the perception of Implementation of Immersive Commerce.

This chapter is based on the two objectives;

7 To identify key operational and strategic challenges faced by retailers in implementing Immersive Commerce.

8 To analyse the risks and barriers perceived by retailers in adopting Immersive Commerce.

6.2 Objectives

The objectives thus formulated to study the challenges, risks and barriers are;

1. To identify key operational and strategic challenges faced by retailers in implementing Immersive Commerce.

2. To analyze the risks and barriers perceived by retailers in adopting Immersive Commerce.

These main two objectives of the research, which identified as the factors, that negatively influences the Successful Implementation of Immersive Commerce. On first stage, the researcher identified the operational and strategic challenges that hinder the Immersive Commerce adoption. Operational challenges are those challenges related to the practicable Implementation or execution of Immersive Commerce where as strategic challenges involve Long-term organizational planning & adoption readiness that affect its Successful Implementation.

6.3 Methodology and Database

In this study, basic statistical techniques were adopted to analyze the perceptions of retailers towards negative impact factors that influences with the Implementation of Immersive Commerce. The primary objective of the analysis was to identify and analyse whether the perceptions significantly vary across the demographic and retailers attributes. The analysis was conducted using IBM SPSS Statistics, ensuring reliability, accuracy, and standardized interpretation of results.

96 Descriptive Statistics such as Mean, Standard Deviation, and Ranking were used to summarize the responses for each construct and its indicators. The Mean score indicates the overall average level of agreement or disagreement among retailers on specific negative impact factors. This is based on the statement prepared for likert scale questions adopted in the questionnaire. A higher mean score indicates stronger perceived challenges, risks, or barriers. Standard Deviation (SD) measures the dispersion or variation in responses; a lower SD indicates that most respondents hold similar views, while a higher SD reflects more diverse opinions. (Field, 2018). Based on the mean values of constructs and items, ranking was performed to identify the most critical negative impact dimensions influencing the Implementation of Immersive Commerce. This ranking is used to highlight priority issues that retailers perceive as major obstacles, such as technological constraints, financial risks, security/privacy concerns, or customer readiness issues. (Pallant, 2020).

To examine whether perceptions varied across demographic characteristics, Inferential Statistical Tests were employed. The Independent Samples t-Test was used when comparing perceptions based on gender viz., male and female and determines whether the difference in the mean perception scores of the two groups is statistically significant Field, A. (2018). A significance value (p-value) less than 0.05 indicates that the difference is meaningful and not due to chance.

For demographic variables with more than two categories—such as age group, educational qualification, years of retail experience, type of retail format, store annual turnover, and retail product sector—One-Way ANOVA (Analysis of Variance) was applied. ANOVA tests whether the mean difference in perception scores across multiple groups is statistically significant. If the ANOVA results show $p < 0.05$, it indicates that at least one group differs significantly from the others. In such cases, Post-Hoc Tukey HSD tests were conducted to identify exactly which groups differ from one another.

For all inferential tests, effect sizes were examined to understand the strength of the differences in perceptions. Additionally, basic statistical assumptions such as normality and homogeneity of variance were checked before running the tests to ensure validity and reliability of results.

Overall, the combination of descriptive and inferential statistical tools allowed the study to:

1. Evaluate the intensity and importance of negative impact factors,
2. Identify demographic variations in perceived challenges, risks, and barriers, and
3. Generate meaningful insights for practical recommendations and strategic decision-making in Immersive Commerce adoption.

6.4 Variables Used for the Study

The variables used to study the negative impact factors are shown as

Figure 6.1

Variables used for the study

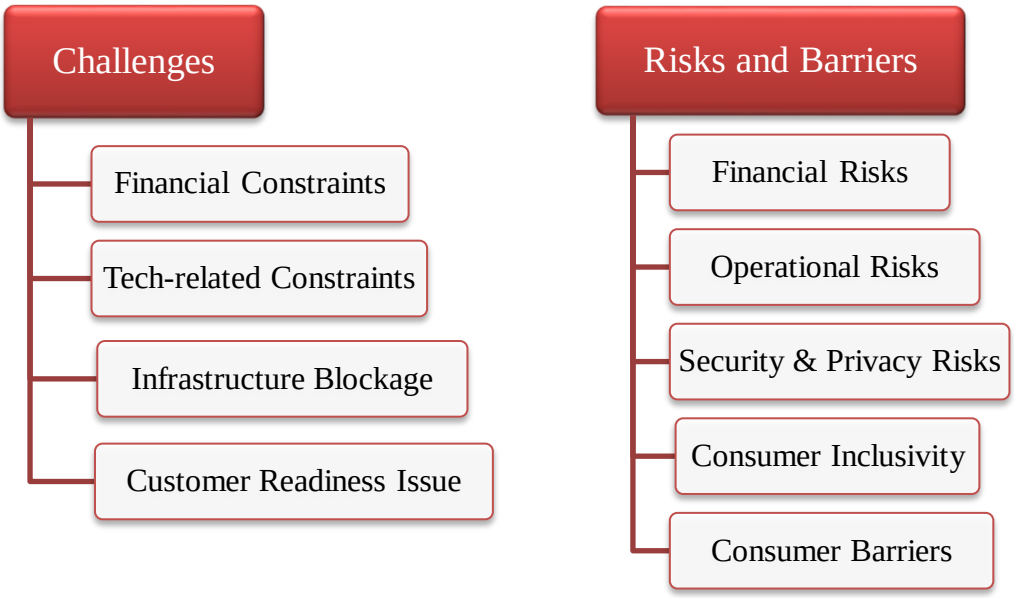


Table 6.1

Categorical Variables

The details of Categorical Variables used in the study are;

Categorical Variable	**Type of Category**	**Responses**
Gender	Nominal	Male/Female/Others
Age	Ordinal	(18-40/41-60/60 Above)
Educational Qualifications	Ordinal	(SSLC/Diploma/Degree/Masters/Professional Degree/Ph.D)
Year of Experience	Ordinal	(1-3 /4-7/8-10/10 Above)
Position/Designation	Nominal	(Owner/Manager/Franchise Partner/Others)
Retail Format	Nominal	(Brick and Mortar/E-Commerce or M.Commerce/Omni-channel)
Annual Turnover	Ordinal	(50 Lakhs -1 crore/ 1 crore-5 crore /5 crore- 10 crore /Above 10 crore)
Location	Nominal	(Bengaluru/Mumbai/DelhiNCR/Hyderabad/Pune/ Chennai/Ahamedabad/Indore/Jaipur/ Kochi/Coimbatore/Bubaneswar)

Category of Retail	Nominal	(Apparels and Fashions/ Electronics and Gadgets/ Grocery and FMCG /Furniture and Home Decor/ Beauty and Health care/ Others)

Here, Gender, Age, Educational Qualifications, Year of Experience, Position/Designation is considered as Demographic Characteristics of respondents while, other variables are considered as Retail Characteristics of the respondents

6.2 Effect of Challenges on Implementation of Immersive Commerce.

The retailers challenges to implement the Immersive Commerce is statistically analyzed based on various statistical tools like mean, standard deviation, ranking method, independent T test, ANOVA and Post Hoc Test.

6.2.1 Descriptive Statistics of Challenges

The descriptive statistics of Challenge is shown as follows;

Table 6.2

Descriptive Statistics of Challenges

Constructs	Factors	N	Mean	SD	Rank
Financial Constraints	Implementing Immersive technology need high investment	390	3.68	.630	2
	Budget limitations may restrict Immersive technology Implementation.	390	3.69	.615	1
	We face difficulty in clarifying ROI for Immersive Commerce	390	3.67	.649	3
	Financial risks cause further expansion of Immersive services	390	3.66	.651	4
Tech-related	Access to advancement in Immersive	390	3.66	.649	4

Constraints	technology is limited.				
	Technical disrupts hinder customer experience.	390	3.71	.639	2
	Difficulty about internal expertise to manage Immersive tools	390	3.73	.672	1
	Dependence on external tech partners affects Implementation	390	3.68	.623	3
Infrastructure Blockage	Our current infrastructure is not suitable for Immersive setup.	390	3.61	.602	3
	Space and layout limitations restrict AR/VR integration.	390	3.63	.620	1
	Lack of digital infrastructure affects Immersive adoption.	390	3.62	.621	2
	Store upgrades are required for Immersive tech compatibility.	390	3.62	.591	2
Consumer Readiness Issue	Many customers are not familiar with Immersive interfaces.	390	4.61	.509	4
	Elderly customers find it difficult to use Immersive tools.	390	4.63	.500	3
	Consumer hesitation limits usage of Immersive features.	390	4.77	.447	1
	Lack of awareness among customers hinders adoption.	390	4.64	.498	2

Based on the descriptive statistics, the greatest issue with the introduction of immersive commerce is the financial limitations. The retailers firmly believe that the largest financial problem is the budget constraint (Mean = 3.69, Rank 1) and then the high start-up cost of the immersive technologies (Mean = 3.68, Rank 2). The perceived financial risk is also barred by the difficulty in calculating the financial payoff of the investment (Mean = 3.67, Rank 3), future growth of the immersive services is also discouraged by the perceived financial risk (Mean = 3.66, Rank 4). Overall, the values of mean are tightly concentrated, and the standard deviations

are medium, which points to the fact that the majority of the retailers have a due sense that the barrier of financial viability is one of the primary obstacles to implementing immersive commerce.

Restriction of technology also emerges as a big problem particularly in the area of inner capacity and the systems dependability. Lack of knowledge on the management of immersive tools (Mean = 3.73, Rank 1) is the most crucial issue and a gap in the retail organisations skills. Technical inconveniences resulting to poor customer experience are also very identified (Mean = 3.71, Rank 2). The dependence on the technology partners (Mean = 3.68, Rank 3) and the incapability to use more sophisticated immersive technologies (Mean = 3.66, Rank 4) also make the implementation complicated. These findings suggest that successful initiation of immersive commerce demands that there should be technological readiness and internal technical skill.

The implementation of immersive commerce is moderately affected by the infrastructure-related issues as the mean scores show the value slightly over 3.60. The most intense phenomenon of infrastructure that inhibits an effective implementation of AR/VR can be seen as perceived in store space and layout (Mean = 3.63, Rank 1). The lack of good digital infrastructure (Mean = 3.62, Rank 2) and the necessity to work on the store improvements to ensure that it is technologically compatible (Mean = 3.62, Rank 2) is a huge blow as well. Retailers also feel that their existing infrastructures are not fully immersive compatible (Mean = 3.61, Rank 3). Through these findings, the material and operational limitations faced by retailers in integrating immersive technologies in a physical retail outlet have been established.

The consumer readiness issue issues are the most challenging of all the constructs whose mean values are very high with a standard of over 4.60. The most significant issue is the unwillingness to engage in the immersive features among the consumers (Mean = 4.77, Rank 1) that is assigned the value of strong resistance or uncertainty among the customers. Other barriers to the adoption of immersive technologies include the lack of awareness of the same (Mean = 4.64, Rank 2) and difficulties of older customers in using immersive technology (Mean = 4.63, Rank 3). The readiness gap is also reinforced by the fact that the customers do not know much about immersive interfaces (Mean = 4.61, Rank 4). Collectively, these findings underscore the fact that

consumer and consumer knowledge as well as access play a vital role in overcoming the barrier to adoption in immersive commerce.

6.2.2 Gender-Wise Analysis

This section deals with Gender wise analysis of retailers key challenges that hinder the Implementation of Immersive Commerce. For this purpose Independent Sample t-test is conducted using IBM SPSS software. The following were the hypotheses formulated to determine the relationship between gender and challenges of implementing Immersive Commerce

The main hypothesis is

H1: There is a significant difference in the perception of operational and strategic challenges in implementing Immersive Commerce between male and female retailers.

Table 6.3

Hypothesis Development

Hypothesis No.	Hypothesis
H1a	There is a significant difference between male and female retailers in their perception of **financial constraints** in Immersive Commerce.
H1b	There is a significant difference between male and female retailers in their perception of **Tech-related constraints** in Immersive Commerce.
H1c	There is a significant difference between male and female retailers in their perception of **Infrastructure Blockage** in Immersive Commerce.
H1d	There is a significant difference between male and female retailers in their perception of **Consumer Readiness Issue** in Immersive Commerce.

Table 6.4

Independent Sample t-test showing gender on Challenges

Construct	Gender	N	Mean	SD	t-value	p-value	Remarks
Financial Constraints	Male	252	2.3681	0.53948	2.246	0.025	Significant (Male > Female)
	Female	138	2.2391	0.54695			
Tech-Related Constraints	Male	252	2.3006	0.54037	–0.346	0.729	Not significant
	Female	138	2.3207	0.5586			
Infrastructure Blockage	Male	252	2.3919	0.51662	0.442	0.659	Not significant
	Female	138	2.3678	0.5119			
Consumer Readiness Issue	Male	252	1.3681	0.44431	1.69	0.092	Not significant
	Female	138	1.288	0.45198			

The t-test results indicate that gender differences are present for Financial Constraints, where males perceive more financial barriers than females. The other constructs like Tech-related constraints and infrastructure blockage have no significant difference in the perception and attitude of facing the challenges. The Customer Readiness Issue is marginally significant where the males perceive slightly more than female retailers. The brief description about each constructs is as follows.

Out of total respondents, the males are higher than when compared to females, male respondents may have suffered more financial constraints at the Implementation stage. The study reveals that the Financial Constraints construct shows a significant difference in gender, with male retailers (Mean = 2.3681, SD = 0.53948) reporting a higher perception of financial constraints compared to female retailers (Mean = 2.2391, SD = 0.54695). The t-test result (t = 2.246, p = 0.025) shows that males retailers has greater challenges in terms of financial concerns like high cost of Implementation, budget limitations, difficulty in justifying Return on Investment (ROI) and expansion of Immersive services when implementing Immersive Commerce technologies in

Indian retail. Financial constraints may play a more important role for male retailers, potentially impacting their willingness or ability to invest in new technologies.

For the Tech-Related Constraints construct, both the gender has equally concern about technological challenges. No significant gender difference was found (t = –0.346, p = 0.729). Both male retailers (Mean = 2.3006, SD = 0.54037) and female retailers (Mean = 2.3207, SD = 0.55860) perceive similar levels of difficulty in utilizing technological solutions for Immersive Commerce. These results indicates that the challenges related to technology such as compatibility and integration issues, the complexity in accessing software/hardware, or the fast growth of technological change are equally experienced by both male and female retailers. The gender similarity in Tech-related constraints highlights the universal nature of these technological barriers across genders in the Indian retail sector.

17 Similarly, there is no significant difference in male and female about the constraints of infrastructure. That means, the study indicates that Infrastructure Blockage have similarity in gender (t = 0.442, p = 0.659), with male retailers (Mean = 2.3919, SD = 0.51662) and female retailers (Mean = 2.3678, SD = 0.51190) both reporting similar perceptions of infrastructure challenges. Infrastructure-related barriers, such as limited access to advanced technology, technical glitches, lack of in-house expertise and dependence in external tech partners appear to be experienced in equal measure by both male and female retailers. This result suggests that infrastructure is a critical challenge for retailers of both genders when it comes to Immersive Commerce Implementation.

The Customer Readiness Issue construct indicates a marginally significant difference in perceptions between male and female retailers (t = 1.690, p = 0.092), with male retailers (Mean = 1.3681, SD = 0.44431) perceiving customer readiness as slightly higher compared to female retailers (Mean = 1.2880, SD = 0.45198), it suggests that male retailers expectation about the readiness of consumers. Consumer readiness can be attained through offering digital literacy, technological confidence and easy accessibility in compatible devices. In short, the study reveals that Male retailers make strategic intentions on customer attitude, knowledge, and awareness about the Immersive Commerce tools than female retailers.

6.2.3 Age Wise Analysis

This section deals to check whether there is any influence of age of retailers on acceptance of challenges. ANOVA test is conducted to understand the perceptive of retailers.

The main hypothesis is

H1 : There is a significant difference in the perception of operational and strategic challenges in implementing Immersive Commerce across age of the respondents.

Table 6.5

Hypothesis Development

Hypothesis No.	**Hypothesis**
H1a	There is a significant difference in age of retailers and their perception of **financial constraints** in Immersive Commerce.
H1b	There is a significant in age of retailers and their perception of **Tech-related constraints** in Immersive Commerce.
H1c	There is a significant difference in age of retailers and their perception of **Infrastructure Blockage** in Immersive Commerce.
H1d	There is a significant difference in age of retailers and their perception of **Consumer Readiness Issue** in Immersive Commerce.

The following table No. showing ANOVA of Age wise category of respondents with perception of challenges

Table 6.6

ANOVA table showing Age wise Category with Challenges

Construct	**Age Category**	**N**	**Mean**	**SD**	**F-value**	**p-value**	**Remarks**

Financial Constraints	18–40	261	2.3228	0.5468	0.073	0.929	Not Significant
	41–60	120	2.3167	0.5564			
	60+	9	2.3889	0.3333			
Tech-Related Constraints	18–40	261	2.3352	0.5399	3.176	0.043	Significant
	41–60	120	2.2792	0.5396			
	60+	9	1.8889	0.6859			
Infrastructure Blockage	18–40	261	2.3544	0.5201	1.778	0.17	Not Significant
	41–60	120	2.4292	0.5064			
	60+	9	2.6111	0.3773			
Customer Readiness Issue	18–40	261	1.3889	0.4558	5.261	0.006	Significant
	41–60	120	1.25	0.4213			
	60+	9	1.1111	0.3333			

The ANOVA results of Financial Constraints show that the influence of age on financial constraints is not statistically significant (F = 0.073, p = 0.929). That means, age has no role in shaping how retailers acceptance to take financial challenges for adopting Immersive tools. The results indicate that retailers across all three age categories ie. 18–40, 41–60, and above 60 indicated similar perceptions of financial constraints as reflected in the very close mean scores (2.3228, 2.3167, and 2.3889 respectively). The standard deviations are also indicating consistent responses within each age group. In short, this hypothesis formulated by the researcher is rejected.

The result of ANOVA of Tech-related Constraints shows that there is a strong influence of age on Tech-related constraints. There is a statistically significant between age and the construct showing the variation of F = 3.176, p = 0.043, indicating that the perception of technological challenges differs across age groups. Younger retailers (18–40) report the highest challenge level (M = 2.3352), followed by middle-aged retailers (41–60) (M = 2.2792). The retailers with above 60 years show a comparatively lower perception of technological constraints (M = 1.8889), since

their standard deviation is higher, indicating variability within the group. These findings suggest that the hypothesis is accepted and the younger retailers have more aware about the complexities in operating Immersive technologies, such as software glitches, device incompatibility, or the need for technological upgradation.

The result analysis of the construct, Infrastructure blockage gave F = 1.778, p = 0.170 indicating that there is no statistically significant and thus, age does not play a significant role in the perceptions of the infrastructure blockage. The average scores (M = 2.3544 in the age group of 1840, M = 2.4292 in the age group of 4160, and M = 2.6111 in the age group above 60 years) show a slow rise over age, and it can be concluded that older retailers experience a relatively more challenging situation in terms of infrastructure. Lack of digital infrastructure, low tech compatibility, less space and layout, prevailing infrastructure facilities shortcomings led the ineffectiveness of Immersive Commerce adoption

The hypothesis is accepted that the Customer readiness has a age group difference (F = 5.261, p = 0.006) and thus indicates that the age of retailers has a significant impact on their view of customer willingness and preparedness to engage in Immersive Commerce. Retailers aged 18 to 40 years are most concerned about the customer readiness issue (M = 1.3889), and retailers of 41 to 60 years (M = 1.2500) are the least concerned with the issues of customer readiness. This is an indication that younger retailers are more skeptical of the level of customer readiness, having the perception that consumers might not be digitally aware and confident about the use of Immersive Commerce tools.

Table 6.7

Multiple Comparison of Age and Challenges

Constructs	Age (I)	Age (J)	Mean Difference (I-J)	Std. Error	Sig.
Financial Constraints	18-40	41-60	.00613	.06025	.994
		60 above	-.06609	.18519	.932
	41-60	18-40	-.00613	.06025	.994

		60 above	-.07222	.18878	.923
	60 above	18-40	.06609	.18519	.932
		41-60	.07222	.18878	.923
Tech-Related Constraints	18-40	41-60	.05608	.05991	.618
		60 above	.44636*	.18417	.042
	41-60	18-40	-.05608	.05991	.618
		60 above	.39028	.18774	.096
	60 above	18-40	-.44636*	.18417	.042
		41-60	-.39028	.18774	.096
Infrastructure Blockage	18-40	41-60	-.07476	.05662	.385
		60 above	-.25670	.17406	.304
	41-60	18-40	.07476	.05662	.385
		60 above	-.18194	.17743	.561
	60 above	18-40	.25670	.17406	.304
		41-60	.18194	.17743	.561
Customer Readiness Issue	18-40	41-60	.13889*	.04889	.013
		60 above	.27778	.15028	.155
	41-60	18-40	-.13889*	.04889	.013
		60 above	.13889	.15320	.636
	60 above	18-40	-.27778	.15028	.155
		41-60	-.13889	.15320	.636
*. The mean difference is significant at the 0.05 level.					

The Tukey HSD post hoc results for age groups (18–40, 41–60, and 60+) show that there are **no significant pair wise differences** for **Financial Constraints** and **Infrastructure Blockage**, as all mean differences were relatively small and non-significant ($p > 0.30$). For **Tech-Related Constraints**, a significant difference seen between the **18–40 and 60+ age groups** (Mean

Difference = 0.44636, p = 0.042), showing that respondents aged 60 and above perceive considerably greater technological challenges compared to 18-40 aged retailers. However, the comparison between 41–60 and 60+ small significance (p = 0.096). In Customer Readiness Issues, a large pairwise difference was observed between the 18-40 and 41-60 groups (Mean Difference = 0.13889, p = 0.013), indicating the perception that middle-aged customers (41-60) have more issues in customer readiness as compared to younger customers.. No other age-group comparisons were statistically significant for this construct. Overall, significant difference across age appear only for Tech-Related Constraints and Customer Readiness issues, indicating that older and middle-aged retailers perceive more challenges than younger groups.

6.2.4 Educational Qualification Wise Analysis

This section deals to check whether there is any influence of educational background of retailers on acceptance of challenges. ANOVA test is conducted to understand the perceptive of retailers.

The main hypothesis is

H1: There is a significant difference in the perception of operational and strategic challenges in implementing Immersive Commerce across the educational qualifications of the respondents.

Table 6.8

Hypothesis Development

Hypothesis No.	**Hypothesis**
H1a	There is a significant difference in educational qualifications of retailers and their perception of **financial constraints** in Immersive Commerce.
H1b	There is a significant in educational qualifications of retailers and their perception of **Tech-related constraints** in Immersive Commerce.
H1c	There is a significant difference in educational qualifications of retailers and their perception of **Infrastructure Blockage** in Immersive Commerce.
H1d	There is a significant difference in educational qualifications of retailers and their

	perception of **Consumer Readiness Issue** in Immersive Commerce.

Table 6.9

ANOVA table showing Educational Qualifications with Challenges

Construct	**Educational Qualification Category**	**N**	**Mean**	**SD**	**F-value**	**p-value**	**Remarks**
Financial Constraints	School/Matriculation	5	2.05	0.32596	0.947	0.451	Not Significant
	Plus Two/Diploma	4	2	0.70711			
	Degree	35	2.2929	0.4944			
	Masters	118	2.3771	0.54277			
	Professional	221	2.3156	0.54948			
	PhD	7	2.1429	0.705			
Tech-Related Constraints	School/Matriculation	5	2.2	0.73739	1.625	0.152	Not Significant
	Plus Two/Diploma	4	2.8125	0.375			
	Degree	35	2.4214	0.43628			
	Masters	118	2.3581	0.54152			
	Professional	221	2.2568	0.55847			
	PhD	7	2.2857	0.52893			
Infrastructure Blockage	School/Matriculation	5	2.4	0.65192	0.898	0.482	Not Significant
	Plus Two/Diploma	4	2.0625	0.125			
	Degree	35	2.3	0.57777			
	Masters	118	2.3432	0.48459			
	Professional	221	2.4219	0.5199			
	PhD	7	2.4286	0.53452			
Customer Readiness Issue	School/Matriculation	5	1.35	0.48734	6.604	0.000	Significant
	Plus Two/Diploma	4	1.375	0.43301			
	Degree	35	1.7357	0.35842			
	Masters	118	1.2987	0.44248			

	Professional	221	1.2952	0.43392			
	PhD	7	1.4286	0.53452			

The results of the ANOVA in educational qualifications show that the mean scores and statistical significance of each of the constructs is different. In the case of Financial Constraints, the means range between 2.00 (Plus Two/Diploma) and 2.38 (Masters) and the total means score is 2.3224, SD =0.545, the ANOVA result = F = 0.947, p =.451 and the result of the ANOVA test does not show any significant difference between the groups. The Tech-Related Constraints exhibit the mean range between 2.20 (School level) and 2.81 (Plus Two/Diploma), and therefore, the total mean of 2.31 (SD =.54626) and again there is no significant effect of educational category as seen in the ANOVA results (F = 1.625, p =.152). On the same way, Infrastructure Blockage has means of 2.06 (Plus Two/Diploma) to 2.43 (PhD) with a total mean of 2.3833 (SD = .51442) and the ANOVA result (F = 0.898, p =.482) indicates that there are no significant group differences. But in Customer Readiness Issue, where the mean scores are between 1.29 (Masters and Professional Qualifications) to 1.74 (Degree holders) with a mean of 1.3397 (SD =.44810) in total. The result of the ANOVA (F = 6.604, p =.000) shows that the difference between the levels of education is statistically significant. This implies that although the issue of operational and strategic challenges is equally felt in both types of educational qualifications, the perceptions of customer readiness towards Immersive Commerce dissimilar in the way that the degree holders have greater concerns of consumer readiness and the professionally qualified retailers have fewer concerns.

Table 6.10

Multiple Comparisons of Educational Qualifications and Challenges

Constructs	Educational Qualification (I)	Educational Qualification (J)	Mean Difference (I-J)	Std. Error	Sig.
Financial Constraints	School or Matriculation Level	Plus Two/Diploma Level	.05000	.36568	1.000

		Degree Level	-.24286	.26062	.938
		Masters Level	-.32712	.24890	.777
		Professional Qualification	-.26561	.24653	.890
		PhD	-.09286	.31919	1.000
	Plus Two/Diploma Level	School or Matriculation Level	-.05000	.36568	1.000
		Degree Level	-.29286	.28772	.912
		Masters Level	-.37712	.27714	.750
		Professional Qualification	-.31561	.27502	.861
		PhD	-.14286	.34167	.998
	Degree Level	School or Matriculation Level	.24286	.26062	.938
		Plus Two/Diploma Level	.29286	.28772	.912
		Masters Level	-.08426	.10492	.967
		Professional Qualification	-.02275	.09917	1.000
		PhD	.15000	.22570	.986
	Masters Level	School or Matriculation	.32712	.24890	.777

		Level			
		Plus Two/Diploma Level	.37712	.27714	.750
		Degree Level	.08426	.10492	.967
		Professional Qualification	.06151	.06215	.921
		PhD	.23426	.21206	.879
	Professional Qualification	School or Matriculation Level	.26561	.24653	.890
		Plus Two/Diploma Level	.31561	.27502	.861
		Degree Level	.02275	.09917	1.000
		Masters Level	-.06151	.06215	.921
		PhD	.17275	.20928	.963
	PhD	School or Matriculation Level	.09286	.31919	1.000
		Plus Two/Diploma Level	.14286	.34167	.998
		Degree Level	-.15000	.22570	.986
		Masters Level	-.23426	.21206	.879

		Professional Qualification	-.17275	.20928	.963
Tech-Related Constraints	School or Matriculation Level	Plus Two/Diploma Level	-.61250	.36498	.547
		Degree Level	-.22143	.26012	.958
		Masters Level	-.15805	.24842	.988
		Professional Qualification	-.05679	.24606	1.000
		PhD	-.08571	.31858	1.000
	Plus Two/Diploma Level	School or Matriculation Level	.61250	.36498	.547
		Degree Level	.39107	.28716	.750
		Masters Level	.45445	.27661	.571
		Professional Qualification	.55571	.27449	.330
		PhD	.52679	.34102	.635
	Degree Level	School or Matriculation Level	.22143	.26012	.958
		Plus Two/Diploma Level	-.39107	.28716	.750
		Masters Level	.06338	.10472	.991

		Professional Qualification	.16464	.09898	.557
		PhD	.13571	.22527	.991
	Masters Level	School or Matriculation Level	.15805	.24842	.988
		Plus Two/Diploma Level	-.45445	.27661	.571
		Degree Level	-.06338	.10472	.991
		Professional Qualification	.10126	.06203	.578
		PhD	.07234	.21165	.999
	Professional Qualification	School or Matriculation Level	.05679	.24606	1.000
		Plus Two/Diploma Level	-.55571	.27449	.330
		Degree Level	-.16464	.09898	.557
		Masters Level	-.10126	.06203	.578
		PhD	-.02893	.20887	1.000
	PhD	School or Matriculation Level	.08571	.31858	1.000
		Plus Two/Diploma	-.52679	.34102	.635

		Level			
		Degree Level	-.13571	.22527	.991
		Masters Level	-.07234	.21165	.999
		Professional Qualification	.02893	.20887	1.000
	School or Matriculation Level	Plus Two/Diploma Level	.33750	.34531	.925
		Degree Level	.10000	.24610	.999
		Masters Level	.05678	.23503	1.000
		Professional Qualification	-.02195	.23280	1.000
		PhD	-.02857	.30141	1.000
Infrastructure Blockage	Plus Two/Diploma Level	School or Matriculation Level	-.33750	.34531	.925
		Degree Level	-.23750	.27169	.952
		Masters Level	-.28072	.26171	.892
		Professional Qualification	-.35945	.25970	.737
		PhD	-.36607	.32264	.867
	Degree Level	School or Matriculation	-.10000	.24610	.999

		Level			
		Plus Two/Diploma Level	.23750	.27169	.952
		Masters Level	-.04322	.09908	.998
		Professional Qualification	-.12195	.09365	.784
		PhD	-.12857	.21313	.991
	Masters Level	School or Matriculation Level	-.05678	.23503	1.000
		Plus Two/Diploma Level	.28072	.26171	.892
		Degree Level	.04322	.09908	.998
		Professional Qualification	-.07873	.05869	.762
		PhD	-.08535	.20025	.998
	Professional Qualification	School or Matriculation Level	.02195	.23280	1.000
		Plus Two/Diploma Level	.35945	.25970	.737
		Degree Level	.12195	.09365	.784

		Masters Level	.07873	.05869	.762
		PhD	-.00663	.19762	1.000
	PhD	School or Matriculation Level	.02857	.30141	1.000
		Plus Two/Diploma Level	.36607	.32264	.867
		Degree Level	.12857	.21313	.991
		Masters Level	.08535	.20025	.998
		Professional Qualification	.00663	.19762	1.000
Customer Readiness Issue	School or Matriculation Level	Plus Two/Diploma Level	-.02500	.29032	1.000
		Degree Level	-.38571	.20691	.426
		Masters Level	.05127	.19761	1.000
		Professional Qualification	.05475	.19572	1.000
		PhD	-.07857	.25341	1.000
	Plus Two/Diploma Level	School or Matriculation Level	.02500	.29032	1.000
		Degree Level	-.36071	.22842	.613
		Masters Level	.07627	.22003	.999

		Professional Qualification	.07975	.21834	.999
		PhD	-.05357	.27126	1.000
	Degree Level	School or Matriculation Level	.38571	.20691	.426
		Plus Two/Diploma Level	.36071	.22842	.613
		Masters Level	.43699*	.08330	.000
		Professional Qualification	.44047*	.07873	.000
		PhD	.30714	.17919	.523
	Masters Level	School or Matriculation Level	-.05127	.19761	1.000
		Plus Two/Diploma Level	-.07627	.22003	.999
		Degree Level	-.43699*	.08330	.000
		Professional Qualification	.00348	.04934	1.000
		PhD	-.12984	.16836	.972
	Professional Qualification	School or Matriculation Level	-.05475	.19572	1.000

		Plus Two/Diploma Level	-.07975	.21834	.999
		Degree Level	-.44047*	.07873	.000
		Masters Level	-.00348	.04934	1.000
		PhD	-.13332	.16615	.967
	PhD	School or Matriculation Level	.07857	.25341	1.000
		Plus Two/Diploma Level	.05357	.27126	1.000
		Degree Level	-.30714	.17919	.523
		Masters Level	.12984	.16836	.972
		Professional Qualification	.13332	.16615	.967

*. The mean difference is significant at the 0.05 level.

The post hoc test through the Tukey HSD analysis gives an insight of numerical differences in the groups of educational qualifications of another construct following the outcome of the ANOVA. In the case of Financial Constraints, all the pair comparisons of the six education categories indicate non significant ($p > .05$) differences in mean, where it can be found that no particular group have any difference with another in viewing financial constraints. In Tech-Related Constraints and Infrastructure Blockage, all the pair wise comparisons are not significant with all the p-values greater than 0.05. This explains that perceptions of tech-related constraints and infrastructural blockage are alike across all the categories of education qualifications and no specific qualification group looks different in its perceptions. Customer Readiness Issue

construct does not display the same trend ie., the Tukey HSD has found that there are significant differences in pair-wise between Degree holders and Masters-level respondents (Mean Difference = .43699, p =.000) and Degree holders and Professional Qualification holders (Mean Difference =.44047, p =.000). These high differences imply that Degree holders have a much higher customer readiness concern than holders of Masters or Professional qualification. The rest of the comparisons are non-significant, i.e. only the Degree-level retailers are significantly different with these two groups. Overall, the post hoc findings support the idea that the educational level has no impact on operational or technological issues but does affect the impressions of customer readiness to Immersive Commerce technologies.

6.2.5 Year of Experience Wise Analysis

This section deals to check whether there is any influence of Previous experience of retailers on acceptance of challenges. ANOVA test is conducted to understand the perceptive of retailers.

The main hypothesis is

H1 : There is a significant difference in the perception of operational and strategic challenges in implementing Immersive Commerce across the Previous experience of retailers

Table 6.11

Hypothesis Development

Hypothesis No.	**Hypothesis**
H1a	There is a significant difference in Previous experience of retailers and their perception of **financial constraints** in Immersive Commerce.
H1b	There is a significant in Previous experience of retailers and their perception of **Tech-related constraints** in Immersive Commerce.
H1c	There is a significant difference in Previous experience of retailers and their perception of **Infrastructure Blockage** in Immersive Commerce.
H1d	There is a significant difference in Previous experience of retailers and their

	perception of **Consumer Readiness Issue** in Immersive Commerce.

Table 6.12

ANOVA table showing Year of Experience and Challenges

Construct	**Year of Experience Category**	**N**	**Mean**	**SD**	**F-value**	**p-value**	**Remarks**
Financial Constraints	Less than 1 year	11	2.1136	0.6742	0.692	0.598	Not Significant
	1–3 years	50	2.375	0.54457			
	4–7 years	162	2.2963	0.55952			
	8–10 years	151	2.3477	0.52992			
	10 years & Above	16	2.3281	0.45386			
Tech-related Constraints	Less than 1 year	11	2.25	0.46098	1.428	0.224	Not Significant
	1–3 years	50	2.385	0.50308			
	4–7 years	162	2.2469	0.5751			
	8–10 years	151	2.3295	0.54035			
	10 years & Above	16	2.5156	0.43271			
Infrastructure Blockage	Less than 1 year	11	2.7727	0.37839	1.746	0.139	Not Significant
	1–3 years	50	2.39	0.49011			
	4–7 years	162	2.3519	0.50965			
	8–10 years	151	2.3874	0.52416			

	10 years & Above	16	2.375	0.57009			
Customer Readiness Issue	Less than 1 year	11	1.3182	0.44848	1.947	0.102	Not Significant
	1–3 years	50	1.3	0.4432			
	4–7 years	162	1.3102	0.42878			
	8–10 years	151	1.4073	0.47312			
	10 years & Above	16	1.1406	0.34118			

The years of the retail experience of the respondents played a significant role in the four major challenge related constructs, which constitute the Implementation of Immersive Commerce-Financial Constraints, Tech-Related Constraints, Infrastructure Blockage, and Customer Readiness Issues. The result of the one-way ANOVA indicates that Financial Constraints is no significance between the categories of experience as the F-value is 0.692 with a p-value of 0.598, which is more than the value of 0.05. This implies that there were no differences in perceptions of retailers who had less than one year and those who had more than ten years of experience in the financial constraints. It is also similar in the case of Tech-Related Constraints where the ANOVA yielded an F-value of 1.428 and a p-value of 0.224, which is greater than the 0.05, indicating that experience differences do not have a significant role in the perception of retailers towards tech-related constraints in Immersive Commerce features. The another construct, Infrastructure Blockage, also failed to prove a statistically significant difference across experience with an F-value 1.746 with a p-value 0.139 indicating crucial infrastructure issues - across experience groups. Lastly, Customer Readiness Issues had the F-value of 1.947 and p-value of 0.102 that is slightly near the 0.05 mark but not yet significant. The result shows that experience variation does not have a significant impact on the perceptions of the retailers with respect to customer awareness, digital literacy, infrastructure adaptiveness and readiness to embrace Immersive Commerce. On the whole, the p-values of all the constructs exceed 0.05, and the given evidence helps conclude that the number of years of experience has no statistically significant effect on the perception of the retailers towards the challenges in the Implementation of the Immersive Commerce.

6.2.6 Position/Designation Wise Analysis

This section deals to check whether there is any influence of Designation of retailers on acceptance of challenges. ANOVA test is conducted to understand the perceptive of retailers.

The main hypothesis is

H1: There is a significant difference in the perception of operational and strategic challenges in implementing Immersive Commerce across the Designation of retailers.

Table 6.13

Hypothesis Development

Hypothesis No.	**Hypothesis**
H1a	There is a significant difference in Designation of retailers and their perception of **financial constraints** in Immersive Commerce.
H1b	There is a significant in Designation of retailers and their perception of **Tech-related constraints** in Immersive Commerce.
H1c	There is a significant difference in Designation of retailers and their perception of **Infrastructure Blockage** in Immersive Commerce.
H1d	There is a significant difference in Designation of retailers and their perception of **Consumer Readiness Issue** in Immersive Commerce.

Table 6.14

ANOVA table showing Position/Designation and Challenges

Construct	**Position/ Designation Category**	**N**	**Mean**	**SD**	**F-value**	**p-value**	**Remarks**
Financial	Franchise	74	2.277	0.5667	0.723	0.539	Not Significant

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Constraints	Partner						
	Manager	109	2.3853	0.5177			
	Owner	175	2.3071	0.5528			
	Others	32	2.2969	0.5479			
Tech-Related Constraints	Franchise Partner	74	2.3007	0.5185	0.363	0.78	Not Significant
	Manager	109	2.3326	0.5058			
	Owner	175	2.3114	0.5837			
	Others	32	2.2188	0.5453			
Infrastructure Blockage	Franchise Partner	74	2.3818	0.5335	1.141	0.332	Not Significant
	Manager	109	2.445	0.4582			
	Owner	175	2.3357	0.5445			
	Others	32	2.4375	0.4752			
Customer Readiness Issue	Franchise Partner	74	1.2534	0.4169	2.762	0.042	Significant
	Manager	109	1.3486	0.4277			
	Owner	175	1.3371	0.4354			
	Others	32	1.5234	0.5969			

Results from one-way ANOVA shows that retailers from different position/designation categories, such as Franchise Partners, Managers, Owners, and Others, do not differ significantly in their perception of most constructs related to challenges. In the case of Financial Constraints, the mean scores ranged between 2.27 and 2.38, and one-way ANOVA showed no significant difference with $F = 0.723$ ($p = 0.539$). The mean values of Tech-Related Constraints also varied ranging between 2.22 and 2.33, and the test revealed no significant difference with $F = 0.363$ ($p = 0.780$). For Infrastructure Blockage, the mean score varied between 2.33 and 2.45, and one-way ANOVA showed no significant difference across designations with $F = 1.141$ ($p = 0.332$). On the contrary, Customer Readiness Issues showed a significant difference where mean values range between 1.25 and 1.52 and ANOVA result is statistically significant with $F = 2.762$ ($p =$

0.042). This suggests that customer readiness perception varies with the position of the retailer, while the perceptions regarding financial, technological, and infrastructural challenges remain the same across all categories of designation.

Table 6.15

Multiple Comparison between Position/Designation and Challenges

Constructs	Position (I)	Position(J)	Mean Difference (I-J)	Std. Error	Sig.
Financial Constraints	Franchise Partner	Manager	-.10829	.08217	.552
		Owner	-.03012	.07564	.979
		Others	-.01985	.11542	.998
	Manager	Franchise Partner	.10829	.08217	.552
		Owner	.07818	.06656	.643
		Others	.08845	.10968	.851
	Owner	Franchise Partner	.03012	.07564	.979
		Manager	-.07818	.06656	.643
		Others	.01027	.10488	1.000
	Others	Franchise Partner	.01985	.11542	.998
		Manager	-.08845	.10968	.851
		Owner	-.01027	.10488	1.000
Tech-Related Constraints	Franchise Partner	Manager	-.03189	.08248	.980
		Owner	-.01075	.07593	.999
		Others	.08193	.11586	.894
	Manager	Franchise	.03189	.08248	.980

		Partner			
		Owner	.02114	.06682	.989
		Others	.11382	.11010	.730
	Owner	Franchise Partner	.01075	.07593	.999
		Manager	-.02114	.06682	.989
		Others	.09268	.10528	.815
	Others	Franchise Partner	-.08193	.11586	.894
		Manager	-.11382	.11010	.730
		Owner	-.09268	.10528	.815
Infrastructure Blockage	Franchise Partner	Manager	-.06320	.07744	.847
		Owner	.04604	.07129	.917
		Others	-.05574	.10878	.956
	Manager	Franchise Partner	.06320	.07744	.847
		Owner	.10924	.06274	.304
		Others	.00745	.10337	1.000
	Owner	Franchise Partner	-.04604	.07129	.917
		Manager	-.10924	.06274	.304
		Others	-.10179	.09885	.732
	Others	Franchise Partner	.05574	.10878	.956
		Manager	-.00745	.10337	1.000
		Owner	.10179	.09885	.732
Customer Readiness Issue	Franchise Partner	Manager	-.09525	.06704	.487
		Owner	-.08376	.06172	.527

		Others	-.27006*	.09417	.023
	Manager	Franchise Partner	.09525	.06704	.487
		Owner	.01148	.05431	.997
		Others	-.17481	.08949	.208
	Owner	Franchise Partner	.08376	.06172	.527
		Manager	-.01148	.05431	.997
		Others	-.18629	.08557	.131
	Others	Franchise Partner	.27006*	.09417	.023
		Manager	.17481	.08949	.208
		Owner	.18629	.08557	.131

*. The mean difference is significant at the 0.05 level.

The Tukey HSD post hoc analysis for Financial Constraints, Tech-Related Constraints, and Infrastructure Blockage shows that none of the pairwise comparisons involving Franchise Partners, Managers, Owners, and Others yielded a statistical difference. All p values were greater than 0.30, further confirming the ANOVA result of relative homogeneity in perceptions across designations in the case of these constructs. In the case of Customer Readiness Issues, there was only one statistically significant pairwise difference: Franchise Partners and Others differed at the significance level with "Others" reporting a significantly greater concern about customer readiness. Mean Difference = 0.27006, p = 0.023. Other paired comparisons for this construct were not statistically significant, so this is the only meaningful variation between Franchisee Partners and Others. This further means that compared to Franchisee Partners, "Others" feel problems relating to the customers' digital literacy, awareness, and readiness for Immersive Commerce are much more serious, while all other designation groups have similar perceptions.

6.2.7 Retail format Wise Analysis

This section deals to check whether there is any influence of Firm's Retail Format on acceptance of challenges. ANOVA test is conducted to understand the perceptive of retailers.

The main hypothesis is

H1 : There is a significant difference in the perception of operational and strategic challenges in implementing Immersive Commerce across the Firm's Retail Format.

Table 6.16

Hypothesis Development

Hypothesis No.	**Hypothesis**
H1a	There is a significant difference in Firm's Retail Format and the Retailer's perception of **financial constraints** in Immersive Commerce.
H1b	There is a significant difference in Firm's Retail Format and the Retailer's perception of **Tech-related constraints** in Immersive Commerce.
H1c	There is a significant difference in Firm's Retail Format and the Retailer's perception of **Infrastructure Blockage** in Immersive Commerce.
H1d	There is a significant difference in Firm's Retail Format and the Retailer's perception of **Consumer Readiness Issue** in Immersive Commerce.

Table 6.17

ANOVA table showing Retail format and Challenges

Construct	**Retail Format Category**	**N**	**Mean**	**SD**	**F-value**	**p-value**	**Remarks**

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Financial Constraints	Brick & Mortar	18	2.36	0.49	0.208	0.812	No significant
	E-Commerce/ M-Commerce	144	2.3	0.57			
	Omni Channel	228	2.33	0.53			
Tech-Related Constraints	Brick & Mortar	18	2.36	0.67	0.102	0.903	No significant
	E-Commerce/ M-Commerce	144	2.31	0.56			
	Omni Channel	228	2.3	0.53			
Infrastructure Blockage	Brick & Mortar	18	2.57	0.47	1.254	0.286	No significant
	E-Commerce/M-Commerce	144	2.37	0.56			
	Omni Channel	228	2.38	0.49			
Customer Readiness Issues	Brick & Mortar	18	1.25	0.36	0.378	0.685	No significant
	E-Commerce/ M-Commerce	144	1.35	0.48			
	Omni Channel	228	1.34	0.43			

The ANOVA results shows that retail format (Brick & Mortar, E-Commerce/M-Commerce, Omni-Channel) does not significantly influence retailers' perceptions of the four challenge constructs related with implementing Immersive Commerce.

For **Financial Constraints (F = 0.208, p = 0.812), Tech-Related Constraints (F = 0.102, p = 0.903), Infrastructure Blockage (F = 1.254, p = 0.286)**, and **Customer Readiness Issues (F = 0.378, p = 0.685),** all p-values were far exceed to **0.05**, indicating **no statistically significant differences** among the three retail formats.

This means that **retailers across traditional, online, and Omni-channel formats similar levels of challenges** when adopting Immersive Commerce. Post-hoc tests would also not show significant pair-wise differences because the overall ANOVA was non-significant. Hence the hypotheses are rejected.

6.2.8 Annual Turnover Wise Analysis

This section deals to check whether there is any effect of Firm's Annual Turnover on challenges. ANOVA test is conducted to understand the perceptive of retailers

The main hypothesis is

H1: There is a significant difference in the perception of operational and strategic challenges in implementing Immersive Commerce across the Firm's Retail Format.

Table 6.18

Hypothesis Development

Hypothesis No.	**Hypothesis**
H1a	There is a significant difference in Firm's Annual Turnover and the Retailer's perception of **financial constraints** in Immersive Commerce.
H1b	There is a significant difference in Firm's Annual Turnover and the Retailer's perception of **Tech-related constraints** in Immersive Commerce.
H1c	There is a significant difference in Firm's Annual Turnover and the Retailer's perception of **Infrastructure Blockage** in Immersive Commerce.
H1d	There is a significant difference in Firm's Annual Turnover and the Retailer's

	perception of **Consumer Readiness Issue** in Immersive Commerce.

Table 6.19

ANOVA table showing Annual turnover and challenges

Construct	**Annual Turnover Category**	**N**	**Mean**	**SD**	**F-value**	**p-value**	**Remarks**
Financial Constraints	10 Crore and Above	70	2.2893	0.54	**0.624**	**0.646**	No significant
	5 Crore – 10 Crore	89	2.3624	0.55			
	1 Crore – 5 Crore	131	2.3092	0.54			
	50 Lakhs – 1 Crore	79	2.3639	0.54			
	Less than 50 Lakhs	21	2.1905	0.51			
Tech-Related Constraints	10 Crore and Above	70	2.3107	0.54	**0.152**	**0.962**	No significant
	5 Crore – 10 Crore	89	2.3258	0.56			
	1 Crore – 5 Crore	131	2.3168	0.58			
	50 Lakhs – 1 Crore	79	2.2658	0.50			
	Less than 50 Lakhs	21	2.3214	0.43			
Infrastructure Blockage	10 Crore and Above	70	2.4107	0.50	**1.707**	**0.148**	No significant
	5 Crore – 10 Crore	89	2.264	0.53			
	1 Crore – 5 Crore	131	2.4103	0.49			
	50 Lakhs – 1 Crore	79	2.4177	0.52			
	Less than 50 Lakhs	21	2.5	0.48			
Customer Readiness Issue	10 Crore and Above	70	1.3893	0.45	**0.662**	**0.619**	No significant
	5 Crore – 10 Crore	89	1.2865	0.42			
	1 Crore – 5 Crore	131	1.3435	0.46			
	50 Lakhs – 1 Crore	79	1.3639	0.45			
	Less than 50 Lakhs	21	1.2857	0.38			

The ANOVA results reveal that firm's **annual turnover does not have any significant effect** on how retailers perceive the challenges associated with implementing Immersive Commerce. For all four constructs viz., **Financial Constraints (p = .646), Tech-Related Constraints (p = .962), Infrastructure Blockage (p = .148), and Customer Readiness Issues (p = .619),** the p-values are above 0.05, indicating that the differences in mean scores across turnover categories (from less than ₹50 lakhs to above ₹10 crores) are statistically insignificant. This means that **both small-scale and large-scale retailers face challenges** when adopting Immersive Commerce technologies and the annual turnover does not meaningfully alter their perceptions of financial, technological, infrastructural, or consumer readiness barriers. Hence all the hypotheses are rejected.

6.2.9 Location Wise Analysis

This section deals to check whether there is any effect of Firm's Location on challenges. ANOVA test is conducted to understand the perceptive of retailers

The main hypothesis is

H1: There is a significant difference in the perception of operational and strategic challenges in implementing Immersive Commerce across the Firm's Location

Table 6.20

Hypothesis Development

Hypothesis No.	**Hypothesis**
H1a	There is a significant difference in Firm's Location and the Retailer's perception of **financial constraints** in Immersive Commerce.
H1b	There is a significant difference in Firm's Location and the Retailer's perception of **Tech-related constraints** in Immersive Commerce.
H1c	There is a significant difference in Firm's Location and the Retailer's perception of **Infrastructure Blockage** in Immersive Commerce.

H1d	There is a significant difference in Firm's Location and the Retailer's perception of **Consumer Readiness Issue** in Immersive Commerce.

Table 6.21

ANOVA Table showing Location and Challenges

Construct	**Location**	**N**	**Mean**	**SD**	**F-value**	**p-value**	**Remarks**
Financial Constraints	Bengaluru	52	2.274	0.5361	**0.616**	**0.816**	Not Significant
	Mumbai	36	2.2292	0.5119			
	Delhi NCR	43	2.2674	0.5784			
	Hyderabad	31	2.3387	0.6243			
	Pune	22	2.3068	0.577			
	Chennai	27	2.287	0.5034			
	Ahmedabad	27	2.4537	0.5191			
	Indore	18	2.5278	0.3824			
	Jaipur	24	2.3646	0.4944			
	Kochi	54	2.2963	0.5789			
	Coimbatore	45	2.35	0.5873			
	Bhubaneswar	11	2.4091	0.4779			
Construct	**Location**	**N**	**Mean**	**SD**	**F-value**	**p-value**	**Remarks**
Tech-Related Constraints	Bengaluru	52	2.1635	0.5728	**1.317**	**0.212**	Not Significant
	Mumbai	36	2.4028	0.4403			
	Delhi NCR	43	2.2209	0.5351			
	Hyderabad	31	2.3306	0.5139			
	Pune	22	2.0795	0.5895			
	Chennai	27	2.3519	0.6134			
	Ahmedabad	27	2.3889	0.4511			
	Indore	18	2.5278	0.6117			

	Jaipur	24	2.3229	0.5491			
	Kochi	54	2.338	0.5498			
	Coimbatore	45	2.3778	0.532			
	Bhubaneswar	11	2.2727	0.6467			
Construct	**Location**	**N**	**Mean**	**SD**	**F-value**	**p-value**	**Remarks**
Infrastructure Blockage	Bengaluru	52	2.4279	0.5153	**0.834**	**0.606**	Not Significant
	Mumbai	36	2.4028	0.464			
	Delhi NCR	43	2.3721	0.5466			
	Hyderabad	31	2.4113	0.5422			
	Pune	22	2.3636	0.516			
	Chennai	27	2.5	0.4102			
	Ahmedabad	27	2.1481	0.6015			
	Indore	18	2.3194	0.5272			
	Jaipur	24	2.3125	0.3987			
	Kochi	54	2.375	0.5337			
	Coimbatore	45	2.45	0.5554			
	Bhubaneswar	11	2.4318	0.4045			
Construct	**Location**	**N**	**Mean**	**SD**	**F-value**	**p-value**	**Remarks**
Customer Readiness Issue	Bengaluru	52	1.4087	0.4826	**1.074**	**0.381**	Not Significant
	Mumbai	36	1.5	0.5071			
	Delhi NCR	43	1.2965	0.4235			
	Hyderabad	31	1.3226	0.4193			
	Pune	22	1.25	0.4226			
	Chennai	27	1.287	0.4025			
	Ahmedabad	27	1.2593	0.4188			
	Indore	18	1.3611	0.4306			
	Jaipur	24	1.3438	0.4412			
	Kochi	54	1.3009	0.4408			

	Coimbatore	45	1.3944	0.4928			
	Bhubaneswar	11	1.1364	0.3034			

The one-way ANOVA results demonstrates that **location does not significantly influence on retailers' perceptions of challenges in implementing Immersive Commerce** across all four constructs, **Financial Constraints (F = 0.616, p = 0.816), Tech-Related Constraints (F = 1.317, p = 0.212), Infrastructure Blockage (F = 0.834, p = 0.606), and Customer Readiness Issues (F = 1.074, p = 0.381).** The variations in mean scores are visible across cities such as Bengaluru, Mumbai, Delhi NCR, Hyderabad, Pune, Chennai, Ahmedabad, Indore, Jaipur, Kochi, Coimbatore, and Bhubaneswar, these differences is caused by normal sampling fluctuations rather than actual differences in perception, as evidenced by the relatively insignificant differences. This implies that retailers in major Indian metropolitan areas encounter the limitations of Immersive Commerce technologies in a highly homogeneous and consistent manner. The company's opinions regarding financial, technological, and infrastructure constraints as well as customer readiness issues are the same whether it is based in a more technologically advanced city like Bengaluru or a new retail hotspot like Bhubaneswar or Indore. According to the findings, Immersive Commerce challenges are systemic and national in nature rather than geographically concentrated. This suggests that policy interventions, technology support systems, and capability-building initiatives should be designed at a national or industry-wide level instead of focussing on specific regions.

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6.2.9 Retail Category Wise Analysis

This section deals to check whether there is any effect of Category of Retail on challenges. ANOVA test is conducted to understand the perceptive of retailers

The main hypothesis is

H1 : There is a significant difference in the perception of operational and strategic challenges in implementing Immersive Commerce across different category of retail.

Table 6.22

Hypothesis Development

Hypothesis No.	Hypothesis
H1a	There is a significant effect of Category of Retail on Retailer's perception of **financial constraints** in Immersive Commerce.
H1b	There is a significant effect of Category of Retail on Retailer's perception of **Tech-related constraints** in Immersive Commerce.
H1c	There is a significant effect of Category of Retail on Retailer's perception of **Infrastructure Blockage** in Immersive Commerce.
H1d	There is a significant effect of Category of Retail on Retailer's perception of **Consumer Readiness Issue** in Immersive Commerce.

Table 6.23

ANOVA table showing Category of Retail and Challenges

Construct	Category of Retail	N	Mean	SD	F-value	p-value	Remarks
Financial Constraints	Apparels & Fashion	105	2.307	0.537	**2.29**	**0.05**	**Significant**
	Electronics & Gadgets	36	2.396	0.468			
	Grocery & FMCG	97	2.351	0.555			
	Furniture & Home Décor	82	2.174	0.636			
	Beauty & Health Care	24	2.521	0.403			
	Others	46	2.402	0.433			

Tech-Related Constraints	Apparels & Fashion	105	2.25	0.495	**0.58**	**0.72**	**Not significant**
	Electronics & Gadgets	36	2.368	0.519			
	Grocery & FMCG	97	2.309	0.562			
	Furniture & Home Décor	82	2.293	0.606			
	Beauty & Health Care	24	2.396	0.516			
	Others	46	2.37	0.56			
Infrastructure Blockage	Apparels & Fashion	105	2.324	0.502	**1.41**	**0.22**	**Not significant**
	Electronics & Gadgets	36	2.465	0.452			
	Grocery & FMCG	97	2.379	0.531			
	Furniture & Home Décor	82	2.372	0.559			
	Beauty & Health Care	24	2.292	0.458			
	Others	46	2.533	0.485			
Customer Readiness Issues	Apparels & Fashion	105	1.343	0.438	**1.03**	**0.4**	**Not significant**
	Electronics & Gadgets	36	1.285	0.444			
	Grocery & FMCG	97	1.338	0.458			
	Furniture & Home Décor	82	1.366	0.441			

	Beauty & Health Care	24	1.49	0.451			
	Others	46	1.255	0.464			

The results of the analysis of variance indicate that various retail categories encounter different levels of challenges when it deals with implementing Immersive Commerce. The cost of implementing Immersive technologies varies by category, with Furniture & Home Décor reporting the lowest perceived financial constraints and Beauty & Health retailers reporting the highest. Of the four concepts, only Financial Constraints shows a statistically significant difference across categories ($F = 2.290$, $p = 0.045$). However, there are no appreciable differences between the six retail categories in terms of Infrastructure Blockage ($p = 0.220$), Customer Readiness Issues ($p = 0.400$), or Tech-Related Constraints ($p = 0.720$). This implies that whether a retailer is in the grocery, electronics, clothing, beauty, home décor, or other industries, technological limitations, infrastructure challenges, and customer readiness issues remain essentially the same. Although there is some variance among the group means values, this is not statistically significant. With financial viability emerging as the only category-sensitive challenge and the majority of operational and consumer-related issues being consistent across retail domains, the overall findings demonstrate that the cost of implementing Immersive Commerce impacts some retail sectors more than others.

Table 6.24

Multiple Comparison of Category of Retail with Challenges

Constructs	Category of Retail (I)	Category of Retail (J)	Mean Difference (I-J)	Std. Error	Sig.
Financial Constraints	Apparels and Fashions	Electronics and Gadgets	-.08869	.10439	.958
		Grocery and FMCG	-.04337	.07612	.993
		Furniture and Home Decor	.13336	.07965	.550
		Beauty and Health Care	-.21369	.12228	.501

		Others	-.09503	.09556	.920
	Electronics and Gadgets	Apparels and Fashions	.08869	.10439	.958
		Grocery and FMCG	.04532	.10548	.998
		Furniture and Home Decor	.22205	.10806	.313
		Beauty and Health Care	-.12500	.14243	.952
		Others	-.00634	.12027	1.000
	Grocery and FMCG	Apparels and Fashions	.04337	.07612	.993
		Electronics and Gadgets	-.04532	.10548	.998
		Furniture and Home Decor	.17673	.08108	.250
		Beauty and Health Care	-.17032	.12322	.738
		Others	-.05166	.09676	.995
	Furniture and Home Decor	Apparels and Fashions	-.13336	.07965	.550
		Electronics and Gadgets	-.22205	.10806	.313
		Grocery and FMCG	-.17673	.08108	.250
		Beauty and Health Care	-.34705	.12543	.065
		Others	-.22839	.09956	.199
	Beauty and Health Care	Apparels and Fashions	.21369	.12228	.501
		Electronics and Gadgets	.12500	.14243	.952
		Grocery and FMCG	.17032	.12322	.738
		Furniture and Home Decor	.34705	.12543	.065
		Others	.11866	.13609	.953
	Others	Apparels and Fashions	.09503	.09556	.920
		Electronics and Gadgets	.00634	.12027	1.000
		Grocery and FMCG	.05166	.09676	.995
		Furniture and Home Decor	.22839	.09956	.199
		Beauty and Health Care	-.11866	.13609	.953

Tech-Related Constraints	Apparels and Fashions	Electronics and Gadgets	-.11806	.10579	.875
		Grocery and FMCG	-.05928	.07714	.973
		Furniture and Home Decor	-.04268	.08073	.995
		Beauty and Health Care	-.14583	.12393	.848
		Others	-.11957	.09685	.820
	Electronics and Gadgets	Apparels and Fashions	.11806	.10579	.875
		Grocery and FMCG	.05878	.10690	.994
		Furniture and Home Decor	.07537	.10951	.983
		Beauty and Health Care	-.02778	.14435	1.000
		Others	-.00151	.12189	1.000
	Grocery and FMCG	Apparels and Fashions	.05928	.07714	.973
		Electronics and Gadgets	-.05878	.10690	.994
		Furniture and Home Decor	.01660	.08217	1.000
		Beauty and Health Care	-.08655	.12488	.983
		Others	-.06029	.09806	.990
	Furniture and Home Decor	Apparels and Fashions	.04268	.08073	.995
		Electronics and Gadgets	-.07537	.10951	.983
		Grocery and FMCG	-.01660	.08217	1.000
		Beauty and Health Care	-.10315	.12712	.965
		Others	-.07688	.10090	.974
	Beauty and Health Care	Apparels and Fashions	.14583	.12393	.848
		Electronics and Gadgets	.02778	.14435	1.000
		Grocery and FMCG	.08655	.12488	.983
		Furniture and Home Decor	.10315	.12712	.965
		Others	.02627	.13793	1.000
	Others	Apparels and Fashions	.11957	.09685	.820

		Electronics and Gadgets	.00151	.12189	1.000
		Grocery and FMCG	.06029	.09806	.990
		Furniture and Home Decor	.07688	.10090	.974
		Beauty and Health Care	-.02627	.13793	1.000
Infrastructure Blockage	Apparels and Fashions	Electronics and Gadgets	-.14147	.09909	.710
		Grocery and FMCG	-.05506	.07226	.974
		Furniture and Home Decor	-.04814	.07561	.988
		Beauty and Health Care	.03214	.11609	1.000
		Others	-.20880	.09072	.196
	Electronics and Gadgets	Apparels and Fashions	.14147	.09909	.710
		Grocery and FMCG	.08641	.10013	.955
		Furniture and Home Decor	.09333	.10258	.944
		Beauty and Health Care	.17361	.13521	.794
		Others	-.06733	.11417	.992
	Grocery and FMCG	Apparels and Fashions	.05506	.07226	.974
		Electronics and Gadgets	-.08641	.10013	.955
		Furniture and Home Decor	.00691	.07697	1.000
		Beauty and Health Care	.08720	.11697	.976
		Others	-.15374	.09185	.550
	Furniture and Home Decor	Apparels and Fashions	.04814	.07561	.988
		Electronics and Gadgets	-.09333	.10258	.944
		Grocery and FMCG	-.00691	.07697	1.000
		Beauty and Health Care	.08028	.11908	.985
		Others	-.16066	.09452	.533
	Beauty and Health Care	Apparels and Fashions	-.03214	.11609	1.000
		Electronics and Gadgets	-.17361	.13521	.794

		Grocery and FMCG	-.08720	.11697	.976
		Furniture and Home Decor	-.08028	.11908	.985
		Others	-.24094	.12920	.426
	Others	Apparels and Fashions	.20880	.09072	.196
		Electronics and Gadgets	.06733	.11417	.992
		Grocery and FMCG	.15374	.09185	.550
		Furniture and Home Decor	.16066	.09452	.533
		Beauty and Health Care	.24094	.12920	.426
Customer Readiness Issue	Apparels and Fashions	Electronics and Gadgets	.05813	.08653	.985
		Grocery and FMCG	.00523	.06309	1.000
		Furniture and Home Decor	-.02300	.06603	.999
		Beauty and Health Care	-.14673	.10137	.698
		Others	.08742	.07922	.880
	Electronics and Gadgets	Apparels and Fashions	-.05813	.08653	.985
		Grocery and FMCG	-.05291	.08743	.991
		Furniture and Home Decor	-.08113	.08957	.945
		Beauty and Health Care	-.20486	.11806	.509
		Others	.02929	.09969	1.000
	Grocery and FMCG	Apparels and Fashions	-.00523	.06309	1.000
		Electronics and Gadgets	.05291	.08743	.991
		Furniture and Home Decor	-.02822	.06721	.998
		Beauty and Health Care	-.15195	.10214	.672
		Others	.08219	.08020	.909
	Furniture and Home Decor	Apparels and Fashions	.02300	.06603	.999
		Electronics and Gadgets	.08113	.08957	.945

		Grocery and FMCG	.02822	.06721	.998
		Beauty and Health Care	-.12373	.10398	.842
		Others	.11042	.08253	.764
	Beauty and Health Care	Apparels and Fashions	.14673	.10137	.698
		Electronics and Gadgets	.20486	.11806	.509
		Grocery and FMCG	.15195	.10214	.672
		Furniture and Home Decor	.12373	.10398	.842
		Others	.23415	.11281	.302
	Others	Apparels and Fashions	-.08742	.07922	.880
		Electronics and Gadgets	-.02929	.09969	1.000
		Grocery and FMCG	-.08219	.08020	.909
		Furniture and Home Decor	-.11042	.08253	.764
		Beauty and Health Care	-.23415	.11281	.302

Since all p-values are significantly above.05 and all the confidence intervals include zero, the post hoc results indicate that the retail category (Apparel & Fashion, Electronics, Grocery, Furniture, Beauty & Health, Others) fails to produce any statistically significant differences in any of the four challenge-related constructs: Financial Constraints, Tech-Related Constraints, Infrastructure Blockage, and Customer Readiness Issues. Several analyses (e.g., Furniture & Home Decor vs. Beauty & Health Care in Financial Constraints; Beauty & Health Care vs. Furniture in Infrastructure Blockage) show slightly greater mean differences, but none of them reach significance, which suggests that these variations are random not significant. This suggests that retailers have a relatively uniform perception of the difficulties in implementing Immersive Commerce across all product categories. It doesn't seem like any one retail segment is more or less constrained than the others. The results indicate that Immersive Commerce barriers are widespread and consistent across various categories of products, confirming that retail category has no apparent effect on the difficulties encountered by retailers.

6.5 Effect of Risks and Barriers on Implementation of Immersive Commerce

The retailer, after Implementation of Immersive has encounters a series of risks and barriers that affect the adaptability, feasibility, technical viability and sustainability of Immersive Commerce. The challenges may sometimes lead to Risks and Barriers. Risks related to financial, operational and security issue may arise after the Immersive technology integrations. High cost of Implementation, uncertain return on investment, data sensitivity and privacy issues are some of the instance that hinders the effectiveness of Immersive Commerce. On other hand, barriers or the obstacles also led to the slowdown of Immersive Commerce adoption. Retailers may focuss on consumer related barriers and consumer inclusivity issue as practical strategies for the adoption. In this section the researcher study a comprehensive examination of risks and barriers. This is essential for the contextual and realistic understanding of the effectiveness of Immersive Commerce in Modern Indian Retailing.

6.8.1 Descriptive Statistics of Risks and Barriers

The following table shows the descriptive statistics of risks and barriers

Table 6.25

Descriptive Statistics of Risks and Barriers

Constructs	Factors	N	Mean	SD	Rank
Financial Risks	Investment in Immersive technologicy carries financial uncertainty.	390	3.66	.598	3
	Immersive Commerce cannot expect enough ROI.	390	3.71	.617	1
	There's a risk of revenue loss due to poor tech performance.	390	3.70	.633	2
	We are cautious about spending due to cost-risk trade-offs.	390	3.70	.617	2
Operational Risks	Technical failures in Immersive systems disrupt operations.	390	3.72	.664	2
	Integration with existing systems is risky.	390	3.69	.635	3

	Immersive features require constant maintenance.	390	3.74	.656	1
	We lack SOPs to handle Immersive tech breakdowns.	390	3.69	.668	3
Security and Privacy Risks	We are concerned about data security in Immersive systems	390	4.40	.490	1
	Cyber threats related to AR/VR are a major concern.	390	4.35	.537	3
	We take steps to ensure data privacy in Immersive environments.	390	4.47	.510	2
	Lack of cyber security standards poses risk to Immersive use.	390	4.40	.491	1
Consumer Inclusivity	Some groups find it hard to access Immersive Commerce	390	4.37	.483	1
	We struggle to make implementatiion of Immersive technology inclusive for all.	390	4.31	.472	2
	There are accessibility challenges for people with disabilities	390	4.37	.495	1
	Language and cultural barriers reduce inclusivity in Immersive adoption	390	4.34	.485	4
Consumer Barrier	Not all customers have the interest or willingness to use Immersive tools.	390	3.69	.599	2
	Many customers lack the digital skills to engage with Immersive content.	390	3.70	.583	1
	Resistance to change limits Immersive Commerce adoption.	390	3.69	.607	2
	Consumer skepticism about virtual shopping affects usage.	390	3.68	.613	3

Financial risks imply the worries of retailers regarding the risk of economic venture in the technologies of immersive commerce. The mean of the financial risk item is 3.66 to 3.71 with relatively low standard deviations (SD =.598 to.633) indicating that the respondents have the

same concern. The highest mean (M = 3.71, SD = +.617) is connected with doubt about the attainment of an adequate ROI, and the next issues are associated with the loss of revenues because of a bad technological performance (M = 3.70, SD = +.633) and trade-offs between costs and risks (M = 3.70, SD = +.617). Such findings suggest that the uncertainties surrounding the financial position are significant restrictions to the eagerness of retailers to invest in immersive commerce programmes.

Operation risks denote the problems of introducing, integrating and supporting immersive commerce systems. The mean score of this construct lies between 3.69 and 3.74 and the standard deviation ranges between 0.635 and 0.668 hence there is moderate high agreement and low variance of response. The systems that have to be constantly maintained (M = 3.74, SD =.656) and disruption of the work due to technical problems is the most worrisome among the retailers (M = 3.72, SD =.664). A major issue is also the presence of risks of integration and the absence of standard operating procedure (M = 3.69, SD =.635-668) that demonstrates that the instability of the functioning is an urgent barrier to its long-term application.

The most significant means score among constructs indicates that security and privacy threat is the primary issue that occurs among retailers. The means are relatively equal (SD =.490 to.537) and the mean values fall within the range of 4.35 to 4.47 which is very much of an agreement. The highest problematic issues are the data security (M 4.40 SD 0.490) and a lack of cybersecurity norms (M 4.40 SD 0.491), and the proactive privacy measures are also described by the high mean (M 4.47 SD 0.510). These results should be used to emphasize that the fear of cyber attacks and data abuse is one of the main aspects, which reduces the trust in immersive commerce environment.

Consumer inclusiveness is the ability of immersive commerce solutions to accommodate various classes of customers. The mean scores (4.31 to 4.37) and the standard deviation (SD =.472 to.495) are high because it demonstrates that there is a high degree of consensus among the retailers. The most significant issues are the difficulties with accessibility of disabled individuals (M = 4.37, SD =.495) and the overall problems with ensuring accessibility to all of the customers (M = 4.37, SD =.483). Language and cultural barriers also reduce inclusiveness (M = 4.34, SD

=.485) and should mean that unless the design is geared towards inclusiveness, the use of immersive commerce is bound to exclude certain groups of consumers.

The issues of resistance and willingness to adopt immersive commerce are the customer problems, which are consumer barriers. The data on the overall ratings of this construct are consistent to show moderate agreement with the mean scores of 3.68-3.70 and the standard deviations of.583-613. The lack of digital skills of the customers (M = 3.70, SD =.583) is the most significant concern, then there is the resistance to change (M = 3.69, SD =.607) and the constraint of willingness to use immersive tools (M = 3.69, SD =.599). Skepticism of the consumers towards virtual shopping (M = 3.68, SD =.613) is another factor that inhibits the adoption, and it needs to be supplemented by customer education and trust-building.

6.8.2 Gender Wise Analysis

This section deals with Gender wise analysis of retailers barriers and risks that hinder the Implementation of Immersive Commerce. For this purpose Independent Sample t-test is conducted using IBM SPSS software. The following were the hypotheses formulated to determine the relationship between Gender and Risks and Barriers of implementing Immersive Commerce.

The main hypothesis is

H1: There is a significant difference in the perception of risks and barriers in implementing Immersive Commerce between male and female retailers.

Table 6.26

Hypothesis Development

Hypothesis No.	**Hypothesis**
H1a	There is a significant difference between male and female retailers in their perception of **Financial risks** in Immersive Commerce.

H1b	There is a significant difference between male and female retailers in their perception of **Operational risks** in Immersive Commerce.
H1c	There is a significant difference between male and female retailers in their perception of **Security and Privacy risks** in Immersive Commerce.
H1d	There is a significant difference between male and female retailers in their perception of **Consumer Inclusivity** in Immersive Commerce.
H1e	There is a significant difference between male and female retailers in their perception of **Consumer Barriers** in Immersive Commerce.

Table 6.27

Independent Sample t-test showing gender on Challenges

Construct	**Gender**	**N**	**Mean**	**SD**	**t-value**	**p-value**	**Remarks**
Financial Risks	Male	252	2.3284	0.55122	1.065	0.287	Not Significant
	Female	138	2.2681	0.50149			
Operational Risks	Male	252	2.3046	0.58428	0.661	0.509	Not Significant
	Female	138	2.2645	0.55102			
Security & Privacy Risks	Male	252	1.6696	0.42488	4.452	0	Significant (Male > Female)
	Female	138	1.462	0.46786			
Consumer Inclusivity	Male	252	1.619	0.42249	–2.266	0.024	Significant (Female > Male)
	Female	138	1.7174	0.38544			
Consumer Barriers	Male	252	2.3234	0.52295	0.726	0.468	Not Significant
	Female	138	2.2844	0.47683			

According to the independent samples t-test, there is no strong significant difference between the perceptions of financial risks between male and female respondents (t = 1.065, p = 0.287). Males have provided the slightly higher mean score (M = 2.3284) as compared to females (M = 2.2681), but the difference is not statistically significant since the p-value is much higher than

0.05. The similarities in the standard deviations also show that there is a similarity in the perceptions of both groups when it comes to financial risks with regard to Immersive Commerce. So, gender is not significant in influencing the perception of financial risks based on the opinion of the respondents.

In the case of operational risks, there is no important difference between genders (t = 0.661, p = 0.509). The average score of the male respondents (M = 2.3046) is higher than that of the female (M = 2.2645), but it is too small to be considered statistically significant. The standard deviations of both groups are almost the same confirming that the two genders perceive operational issues, which include technological breakdown or a system failure, differently. In this way, perceptions of operational risks are similar among male and female participants.

There is a statistically significant difference in security and privacy risks between male and female respondents (t = 4.452, p = 0.000). The males were significantly higher (M = 1.6696) compared to females (M = 1.4620), and the difference is also relatively high (p-value is highly significant). The difference in the mean of males is rather high, which indicates that men are more sensitive to perceiving the threat of Immersive data-security in Commerce, privacy vulnerabilities, and cyber risks. This may represent an increased awareness or sensitivity of the male participants with respect to the issues of digital security. In general, gender plays a significant role in security and privacy risk perceptions.

There is a gender difference in the construct of consumer inclusivity as females expressed more concerns regarding inclusiveness (t = -2.266, p = 0.024). The mean score of 1.7174 of women respondents was compared to 1.6190 of male respondents . This means that females were more perceived whether Immersive technologies may sufficiently support different users, including those with access or usability disabilities. The t-value is negative which implies a higher female mean than a male mean. These results indicate that gender is a factor to consider when it comes to the inclusivity perceptions regarding Immersive Commerce.

There are no significant differences in consumer barriers between male and female respondents (t = 0.726, p = 0.468). Men were rated slightly higher (M = 2.3234) than women (M = 2.2844), but this value is not statistically significant because the p-value is large. The standard deviations in both groups are similar and this implies that the two groups have consistent perceptions about

barriers to entry like consumer awareness, readiness to adopt and the perceived difficulty in the use of Immersive technologies. Therefore, gender does not play a serious role in the perception of consumer barriers in the study.

6.8.3 Age Wise Analysis

This section deals to check whether there is any influence of age of retailers on risks and barriers. ANOVA test is conducted to understand the perceptive of retailers.

The main hypothesis is

H1 : There is a significant difference in the perception of risks and barriers in implementing Immersive Commerce across age of the respondents.

Table 6.28

Hypothesis Development

Hypothesis No.	Hypothesis
H1a	There is a significant difference in age of retailers and their perception of **Financial Risks** in Immersive Commerce.
H1b	There is a significant in age of retailers and their perception of **Operational Risks** in Immersive Commerce.
H1c	There is a significant difference in age of retailers and their perception of **Security and Privacy Risks** in Immersive Commerce.
H1d	There is a significant difference in age of retailers and their perception of **Consumer Inclusivity** in Immersive Commerce.
H1e	There is a significant difference in age of retailers and their perception of **Consumer Barriers** in Immersive Commerce.

Table 6.29

ANOVA of Age wise category of respondents with risks and barriers

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Construct	Age	N	Mean	SD	F-value	p-value	Remarks
Financial Risks	18–40	261	2.313	0.533	2.073	0.127	Not Significant
	41–60	120	2.269	0.539			
	60 above	9	2.639	0.435			
Operational Risks	18–40	261	2.24	0.588	3.197	0.042	Significant
	41–60	120	2.39	0.521			
	60 above	9	2.444	0.622			
Security & Privacy Risks	18–40	261	1.645	0.423	5.898	0.003	Significant
	41–60	120	1.481	0.491			
	60 above	9	1.722	0.441			
Consumer Inclusivity	18–40	261	1.618	0.416	3.05	0.048	Significant
	41–60	120	1.727	0.386			
	60 above	9	1.722	0.522			
Consumer Barriers	18–40	261	2.311	0.508	0.711	0.492	Not Significant
	41–60	120	2.292	0.51			
	60 above	9	2.5	0.451			

The results indicate that there is a comparison of the age groups in all constructs confirming that there are both non-significant and significant differences. Financial Risks do not reveal any statistically significant differences between age groups (F = 2.073, p = .127), as perceptions of financial uncertainty in Immersive Commerce are similar among the respondents within the age

groups of 18 40, 41 60 and above 60, even though the mean score in the oldest group is substantially higher (M = 2.64).

There are also great differences between Operational Risks based on age (F = 3.197, p =.042), because respondents between 41-60 years (M = 2.39) and over 60 (M = 2.44) recorded higher operation risks as compared to their age (M = 2.24). There is a high and considerably significant difference of Security and Privacy Risks (F = 5.898, p =.003), with the lowest risks reported by the 41-60 age group (M = 1.48), with the younger (M = 1.64) and the older respondents (M = 1.72) being more sensitive to the security and privacy risks. The perceptions of inclusivity also vary considerably depending on age (F = 3.050, p = .048), with the middle-aged and older ones (both around M = 1.72) exhibiting more concerns with consumer inclusivity than younger respondents (M = 1.62). Lastly, Consumer Barriers is not significantly different in age categories (F =.711, p =.492) so that the age categories have a similar opinion of the consumer-related barriers in the Immersive Commerce systems. In short, there seems to be an effect of age on Operational, Security & Privacy, and Inclusivity issues, whereas Financial Risks and Consumer Barriers do not differ significantly with groups.

Table 6.30

Multiple Comparison of Age with Risks and Barriers

Construct	**Age (I)**	**Age (J)**	**Mean Difference (I–J)**	**Std. Error**	**Sig.**
Financial Risks	18–40	41–60	0.04447	0.0588	0.73
	18–40	60 above	–0.32567	0.1806	0.17
	41–60	18–40	–0.04447	0.0588	0.73
	41–60	60 above	–0.37014	0.1841	0.11
	60 above	18–40	0.32567	0.1806	0.17
	60 above	41–60	0.37014	0.1841	0.11
Operational Risks	18–40	41–60	–0.15012*	0.0628	0.05
	18–40	60 above	–0.20498	0.193	0.54
	41–60	18–40	0.15012*	0.0628	0.05

	41–60	60 above	–0.05486	0.1967	0.96
	60 above	18–40	0.20498	0.193	0.54
	60 above	41–60	0.05486	0.1967	0.96
Security & Privacy Risks	18–40	41–60	0.16339*	0.0491	0.000
	18–40	60 above	–0.07759	0.151	0.87
	41–60	18–40	–0.16339*	0.0491	0.000
	41–60	60 above	–0.24097	0.154	0.26
	60 above	18–40	0.07759	0.151	0.87
	60 above	41–60	0.24097	0.154	0.26
Consumer Inclusivity	18–40	41–60	–0.10927*	0.0452	0.04
	18–40	60 above	–0.10441	0.1389	0.73
	41–60	18–40	0.10927*	0.0452	0.04
	41–60	60 above	0.00486	0.1416	1
	60 above	18–40	0.10441	0.1389	0.73
	60 above	41–60	–0.00486	0.1416	1
Consumer Barriers	18–40	41–60	0.01964	0.0559	0.93
	18–40	60 above	–0.18870	0.172	0.52
	41–60	18–40	–0.01964	0.0559	0.93
	41–60	60 above	–0.20833	0.1753	0.46
	60 above	18–40	0.1887	0.172	0.52
	60 above	41–60	0.20833	0.1753	0.46

The Tukey HSD post-hoc tests reveal that most age groups do not differ significantly in their perceptions across the five risks and barrier constructs, with a few exceptions. For **Operational Risks**, a significant difference emerges between the 18–40 and 41–60 age groups (mean difference = –0.15012, p = .045), indicating that middle-aged respondents perceive higher operational challenges compared to younger participants. For **Security & Privacy Risks**, the 18–40 group reports significantly higher concerns than the 41–60 group (mean difference = 0.16339, p = .003), suggesting that younger respondents are more sensitive to digital security threats. In the domain of **Inclusivity**, a significant difference is also observed between these same two age

groups (mean difference = –0.10927, p = .042), with middle-aged respondents perceiving greater inclusivity-related barriers than younger users. For **Financial Risks** and **Consumer Barriers**, no pair wise age comparison reaches statistical significance, confirming that these constructs are perceived similarly across all age categories. Overall, the meaningful differences are concentrated between the younger (18–40) and middle-aged (41–60) groups, while the "60 above" group does not significantly differ from others in any construct, likely due to small sample size.

6.8.4 Educational Qualification Wise Analysis

This section deals to check whether there is any influence of educational background of retailers on risks and barriers to the effective Implementation of Immersive Commerce. ANOVA test is conducted to understand the perceptive of retailers.

The main hypothesis is

H1: There is a significant difference in the risks and barriers to the effective implementing Immersive Commerce across the educational qualifications of the respondents.

Table 6.31

Hypothesis Development

Hypothesis No.	Hypothesis
H1a	There is a significant difference in educational qualifications of retailers and their perception of **financial risks** in Immersive Commerce.
H1b	There is a significant in educational qualifications of retailers and their perception of **Operational risks** in Immersive Commerce.
H1c	There is a significant difference in educational qualifications of retailers and their perception of **Security and Privacy Risks** in Immersive Commerce.
H1d	There is a significant difference in educational qualifications of retailers and their perception of **Consumer Inclusivity** in Immersive Commerce.

H1e	There is a significant difference in educational qualifications of retailers and their perception of **Consumer Barriers** in Immersive Commerce.

Table 6.32

ANOVA of Educational Qualification and Risks and Barriers

Construct	**Educational Qualification**	**N**	**Mean**	**SD**	**F-value**	**p-value**	**Remarks**
Financial Risks	School/Matric	5	2.65	0.41833	1.131	0.343	Not Significant
	Plus Two/Diploma	4	2.75	0.35355			
	Degree	35	2.25	0.52511			
	Masters	118	2.286	0.56166			
	Professional	221	2.3145	0.52826			
	PhD	7	2.2143	0.3363			
Operational Risks	School/Matric	5	2.6	0.57554	1.284	0.27	Not Significant
	Plus Two/Diploma	4	2.1875	0.55434			
	Degree	35	2.0929	0.55269			
	Masters	118	2.2987	0.594			
	Professional	221	2.3077	0.56186			
	PhD	7	2.4286	0.57217			
Security & Privacy Risks	School/Matric	5	1.95	0.1118	2.502	0.03	Significant
	Plus Two/Diploma	4	1.625	0.43301			
	Degree	35	1.8	0.3197			
	Masters	118	1.5869	0.46956			
	Professional	221	1.5656	0.45251			

	PhD	7	1.4286	0.53452			
Consumer Inclusivity	School/Matric	5	1.2	0.44721	3.856	0.002	Significant
	Plus Two/Diploma	4	1.375	0.43301			
	Degree	35	1.8286	0.31373			
	Masters	118	1.7076	0.38161			
	Professional	221	1.6165	0.42406			
	PhD	7	1.5357	0.50885			
Consumer Barriers	School/Matric	5	2.35	0.60208	0.225	0.952	Not Significant
	Plus Two/Diploma	4	2.3125	0.47324			
	Degree	35	2.2929	0.51978			
	Masters	118	2.3475	0.47595			
	Professional	221	2.2896	0.52426			
	PhD	7	2.3571	0.47559			

The descriptive results across the six educational qualification groups—School/Matric, Plus Two/Diploma, Degree, Masters, Professional Qualification, and PhD—provide a comprehensive understanding of how respondents perceive various risk and barrier constructs associated with Immersive Commerce Implementation. The analysis shows varying mean scores for Financial Risks, Operational Risks, Security & Privacy Risks, Inclusivity, and Consumer Barriers; however, the level of variation differs considerably across constructs, as confirmed by the ANOVA results. The ANOVA tests were conducted to determine whether these observed differences in mean scores are statistically significant across educational groups.

For **Financial Risks**, the mean values range from 2.214 (PhD) to 2.750 (Plus Two/Diploma), indicating slight perceptual differences, with lower education groups reporting marginally higher concerns about financial uncertainties linked to Immersive Commerce. However, the ANOVA result ($F = 1.131$, $p = .343$) clearly shows that these differences are not statistically significant. This suggests that individuals across all educational backgrounds share a similar perception

regarding the financial risks of adopting Immersive Commerce technologies. In other words, regardless of academic qualification, employees perceive financial uncertainty, cost–risk considerations, and return-on-investment concerns in a consistent manner.

A similar pattern emerges for **Operational Risks**, where the mean values also show notable variation descriptively—from 2.093 (Degree) to 2.600 (School/Matric)—but the statistical test again indicates no significant difference ($F = 1.284$, $p = .270$). This implies that operational challenges, such as the possibility of technical failures, system integration issues, and maintenance burdens, are perceived uniformly across educational categories. The lack of significant variation indicates that operational risk awareness is widespread across all levels of education, likely because these challenges are experienced practically on the ground and not necessarily dependent on one's academic background.

The findings shift notably when examining **Security & Privacy Risks**, with descriptive means ranging from 1.4286 (PhD) to 1.9500 (School/Matric). The ANOVA results show a statistically significant difference ($F = 2.502$, $p = .030$), meaning that educational qualification meaningfully affects perceptions of data security threats, privacy concerns, and cyber-related vulnerabilities in Immersive systems. Lower-educated groups (School/Matric and Diploma) report higher levels of concern, which may reflect limited exposure to digital systems and lower confidence in handling technology-related risks. Conversely, higher educational groups (Masters, Professional, PhD) demonstrate lower perceived risks, likely due to greater technological familiarity, digital literacy, and awareness of security protocols. This variance indicates that awareness programs and targeted training may be necessary for lower education categories to ensure smooth adoption of Immersive technologies.

Another construct showing significant variation is **Inclusivity**, where mean values range from 1.20 (School/Matric) to 1.8286 (Degree). The ANOVA result ($F = 3.856$, $p = .002$) demonstrates a strong influence of educational qualification on perceptions related to inclusivity challenges in Immersive Commerce. Lower educational groups appear to feel less included or more concerned about accessibility, indicating that Immersive technologies may be perceived as difficult or intimidating tools that could leave them behind. Higher educational groups, especially Degree and Masters holders, show higher inclusivity perceptions, possibly due to greater exposure to

digital environments and confidence in adaptability. This suggests that inclusivity issues in Immersive Commerce are linked to educational exposure and perceived technological competence.

In the case of **Consumer Barriers**, although descriptive means show slight differences between groups, ranging from 2.2929 (Degree) to 2.3500 (School/Matric), the ANOVA result (F = .225, p = .952) confirms that these differences are statistically insignificant. This indicates that across all educational levels, respondents perceive consumer-related barriers—such as customer hesitation, usability limitations, or lack of awareness—in almost the same way. Such uniformity suggests that consumer-related issues are seen as external challenges that affect all employees similarly, regardless of their educational background.

Overall, among the five constructs analyzed, only **Security & Privacy Risks** and **Inclusivity** show statistically significant differences across educational qualifications. These findings highlight the need for targeted interventions to improve tech confidence, digital literacy, and inclusiveness among lower-educated groups. Meanwhile, uniform perceptions of financial, operational, and consumer barriers reflect shared experiences and common organizational realities faced by individuals across all education levels. This analysis thus provides meaningful insights for policymakers, retail managers, and researchers seeking to enhance Immersive Commerce Implementation in the Indian retail sector.

Table 6.33

Multiple Comparison of Educational Qualification and Risks and Barriers

Construct	Educational Qualification (I)	Educational Qualification (J)	Mean Difference (I-J)	Std. Error	Sig.
Financial Risks	School or Matriculation Level	Plus Two/Diploma Level	-.10000	.35811	1.000
		Degree Level	.40000	.25522	.621
		Masters Level	.36398	.24374	.669

		Professional Qualification	.33552	.24142	.733
		PhD	.43571	.31258	.731
	Plus Two/Diploma Level	School or Matriculation Level	.10000	.35811	1.000
		Degree Level	.50000	.28176	.483
		Masters Level	.46398	.27140	.526
		Professional Qualification	.43552	.26932	.588
		PhD	.53571	.33460	.598
	Degree Level	School or Matriculation Level	-.40000	.25522	.621
		Plus Two/Diploma Level	-.50000	.28176	.483
		Masters Level	-.03602	.10275	.999
		Professional Qualification	-.06448	.09712	.986
		PhD	.03571	.22103	1.000
	Masters Level	School or Matriculation Level	-.36398	.24374	.669
		Plus Two/Diploma Level	-.46398	.27140	.526
		Degree Level	.03602	.10275	.999
		Professional Qualification	-.02846	.06087	.997

		PhD	.07173	.20767	.999
	Professional Qualification	School or Matriculation Level	-.33552	.24142	.733
		Plus Two/Diploma Level	-.43552	.26932	.588
		Degree Level	.06448	.09712	.986
		Masters Level	.02846	.06087	.997
		PhD	.10019	.20494	.997
	PhD	School or Matriculation Level	-.43571	.31258	.731
		Plus Two/Diploma Level	-.53571	.33460	.598
		Degree Level	-.03571	.22103	1.000
		Masters Level	-.07173	.20767	.999
		Professional Qualification	-.10019	.20494	.997
Operational Risks	School or Matriculation Level	Plus Two/Diploma Level	.41250	.38324	.891
		Degree Level	.50714	.27313	.431
		Masters Level	.30127	.26085	.858
		Professional Qualification	.29231	.25837	.868
		PhD	.17143	.33452	.996
	Plus Two/Diploma	School or Matriculation	-.41250	.38324	.891

	Level	Level			
		Degree Level	.09464	.30153	1.000
		Masters Level	-.11123	.29045	.999
		Professional Qualification	-.12019	.28822	.998
		PhD	-.24107	.35808	.985
	Degree Level	School or Matriculation Level	-.50714	.27313	.431
		Plus Two/Diploma Level	-.09464	.30153	1.000
		Masters Level	-.20587	.10996	.421
		Professional Qualification	-.21484	.10393	.307
		PhD	-.33571	.23654	.715
	Masters Level	School or Matriculation Level	-.30127	.26085	.858
		Plus Two/Diploma Level	.11123	.29045	.999
		Degree Level	.20587	.10996	.421
		Professional Qualification	-.00896	.06514	1.000
		PhD	-.12984	.22224	.992
	Professional Qualification	School or Matriculation Level	-.29231	.25837	.868

		Plus Two/Diploma Level	.12019	.28822	.998
		Degree Level	.21484	.10393	.307
		Masters Level	.00896	.06514	1.000
		PhD	-.12088	.21932	.994
	PhD	School or Matriculation Level	-.17143	.33452	.996
		Plus Two/Diploma Level	.24107	.35808	.985
		Degree Level	.33571	.23654	.715
		Masters Level	.12984	.22224	.992
		Professional Qualification	.12088	.21932	.994
Security & Privacy Risks	School or Matriculation Level	Plus Two/Diploma Level	.32500	.29970	.887
		Degree Level	.15000	.21360	.982
		Masters Level	.36314	.20399	.480
		Professional Qualification	.38439	.20205	.402
		PhD	.52143	.26160	.348
	Plus Two/Diploma Level	School or Matriculation Level	-.32500	.29970	.887
		Degree Level	-.17500	.23580	.977
		Masters Level	.03814	.22714	1.000
		Professional	.05939	.22540	1.000

		Qualification			
		PhD	.19643	.28003	.982
	Degree Level	School or Matriculation Level	-.15000	.21360	.982
		Plus Two/Diploma Level	.17500	.23580	.977
		Masters Level	.21314	.08599	.133
		Professional Qualification	.23439*	.08128	.047
		PhD	.37143	.18498	.340
	Masters Level	School or Matriculation Level	-.36314	.20399	.480
		Plus Two/Diploma Level	-.03814	.22714	1.000
		Degree Level	-.21314	.08599	.133
		Professional Qualification	.02125	.05094	.998
		PhD	.15829	.17380	.944
	Professional Qualification	School or Matriculation Level	-.38439	.20205	.402
		Plus Two/Diploma Level	-.05939	.22540	1.000
		Degree Level	-.23439*	.08128	.047
		Masters Level	-.02125	.05094	.998

		PhD	.13704	.17152	.968
	PhD	School or Matriculation Level	-.52143	.26160	.348
		Plus Two/Diploma Level	-.19643	.28003	.982
		Degree Level	-.37143	.18498	.340
		Masters Level	-.15829	.17380	.944
		Professional Qualification	-.13704	.17152	.968
Inclusivity	School or Matriculation Level	Plus Two/Diploma Level	-.17500	.27142	.987
		Degree Level	-.62857*	.19344	.016
		Masters Level	-.50763	.18474	.068
		Professional Qualification	-.41652	.18298	.206
		PhD	-.33571	.23691	.717
	Plus Two/Diploma Level	School or Matriculation Level	.17500	.27142	.987
		Degree Level	-.45357	.21355	.277
		Masters Level	-.33263	.20570	.588
		Professional Qualification	-.24152	.20413	.845
		PhD	-.16071	.25360	.988
	Degree Level	School or Matriculation Level	.62857*	.19344	.016

		Plus Two/Diploma Level	.45357	.21355	.277
		Masters Level	.12094	.07788	.630
		Professional Qualification	.21206*	.07361	.048
		PhD	.29286	.16752	.501
	Masters Level	School or Matriculation Level	.50763	.18474	.068
		Plus Two/Diploma Level	.33263	.20570	.588
		Degree Level	-.12094	.07788	.630
		Professional Qualification	.09111	.04613	.359
		PhD	.17191	.15740	.884
	Professional Qualification	School or Matriculation Level	.41652	.18298	.206
		Plus Two/Diploma Level	.24152	.20413	.845
		Degree Level	-.21206*	.07361	.048
		Masters Level	-.09111	.04613	.359
		PhD	.08080	.15533	.995
	PhD	School or Matriculation Level	.33571	.23691	.717

		Plus Two/Diploma Level	.16071	.25360	.988
		Degree Level	-.29286	.16752	.501
		Masters Level	-.17191	.15740	.884
		Professional Qualification	-.08080	.15533	.995
Consumer Barriers	School or Matriculation Level	Plus Two/Diploma Level	.03750	.34170	1.000
		Degree Level	.05714	.24353	1.000
		Masters Level	.00254	.23258	1.000
		Professional Qualification	.06041	.23036	1.000
		PhD	-.00714	.29826	1.000
	Plus Two/Diploma Level	School or Matriculation Level	-.03750	.34170	1.000
		Degree Level	.01964	.26885	1.000
		Masters Level	-.03496	.25897	1.000
		Professional Qualification	.02291	.25698	1.000
		PhD	-.04464	.31927	1.000
	Degree Level	School or Matriculation Level	-.05714	.24353	1.000
		Plus Two/Diploma Level	-.01964	.26885	1.000
		Masters Level	-.05460	.09804	.994

		Professional Qualification	.00326	.09267	1.000
		PhD	-.06429	.21090	1.000
	Masters Level	School or Matriculation Level	-.00254	.23258	1.000
		Plus Two/Diploma Level	.03496	.25897	1.000
		Degree Level	.05460	.09804	.994
		Professional Qualification	.05786	.05808	.919
		PhD	-.00969	.19816	1.000
	Professional Qualification	School or Matriculation Level	-.06041	.23036	1.000
		Plus Two/Diploma Level	-.02291	.25698	1.000
		Degree Level	-.00326	.09267	1.000
		Masters Level	-.05786	.05808	.919
		PhD	-.06755	.19555	.999
	PhD	School or Matriculation Level	.00714	.29826	1.000
		Plus Two/Diploma Level	.04464	.31927	1.000
		Degree Level	.06429	.21090	1.000
		Masters Level	.00969	.19816	1.000

		Professional Qualification	.06755	.19555	.999
*. The mean difference is significant at the 0.05 level.					

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6.8.5 Year of Experience Wise Analysis

This section deals to check whether there is any influence of Previous experience of retailers on risks and barriers to the effective Implementation of Immersive Commerce. ANOVA test is conducted to understand the perceptive of retailers.

The main hypothesis is

H1: There is a significant difference in the perception of risks and barriers to the effective Implementation of Immersive Commerce across the previous experience of retailers

Table 6.34

Hypothesis Development

Hypothesis No.	**Hypothesis**
H1a	There is a significant difference in Previous experience of retailers and their perception of **financial risks** in Immersive Commerce.
H1b	There is a significant in Previous experience of retailers and their perception of **Operational risks** in Immersive Commerce.
H1c	There is a significant difference in Previous experience of retailers and their perception of **security and privacy risks** in Immersive Commerce.
H1d	There is a significant difference in Previous experience of retailers and their perception of **Consumer Inclusivity** in Immersive Commerce.
H1e	There is a significant difference in Previous experience of retailers and their perception of **Consumer Barrier** in Immersive Commerce.

Table 6.35

ANOVA table showing Year of experience and Risks and barriers

Construct	Year of Experience	N	Mean	SD	F-value	p-value	Remarks
Financial Risks	Less than 1 year	11	2.136	0.574	1.056	0.378	Not Significant
	1–3 years	50	2.33	0.483			
	4–7 years	162	2.358	0.516			
	8–10 years	151	2.27	0.559			
	10+ years	16	2.188	0.602			
Operational Risks	Less than 1 year	11	2.023	0.48	1.594	0.175	Not Significant
	1–3 years	50	2.37	0.472			
	4–7 years	162	2.252	0.589			
	8–10 years	151	2.303	0.597			
	10+ years	16	2.5	0.438			
Security & Privacy Risks	Less than 1 year	11	1.546	0.522	8.423	0	Significant
	1–3 years	50	1.34	0.468			
	4–7 years	162	1.586	0.442			
	8–10 years	151	1.719	0.401			
	10+ years	16	1.375	0.5			
Consumer Inclusivity	Less than 1 year	11	1.75	0.274	2.993	0.019	Significant
	1–3 years	50	1.81	0.363			
	4–7 years	162	1.644	0.426			
	8–10 years	151	1.596	0.41			
	10+ years	16	1.75	0.398			

Consumer Barriers	Less than 1 year	11	2.205	0.65	0.391	0.815	Not Significant
	1–3 years	50	2.29	0.456			
	4–7 years	162	2.312	0.526			
	8–10 years	151	2.333	0.495			
	10+ years	16	2.203	0.51			

The perceptions of Immersive Commerce related to risks and barriers with experience of the retailer is studied by the researcher found that most of the constructs are not statistically significant based on the test conducted via., one-way ANOVA analysis. It was suggested that the retailer who are new entrants or seasoned professionals, tend to share relatively similar viewpoints about these specific risks and barriers related to Immersive Commerce.

In the case of Financial Risks ($p = 0.378$), the distributions of the mean scores in terms of experience groups are similar, which means that there is a common perception that the financial uncertainty, Implementation cost, or investment-related risks of Immersive Commerce are equally perceived in the industry. There is no significant difference between Operational Risks ($p = 0.175$), which is that retailers with all experience levels are concerned about common operational issues, the complexity of technologies, or risks in the workflow due to Immersive technologies. Likewise, Consumer Barriers ($p = 0.815$) - which entails consumer hesitation, a lack of being informed or resistant to using AR/VR also manifesting stable perceptions in all categories of experiences that show that frontline staff and experienced managers are in agreement on the degree to which consumers may be struggling to adopt.

On the contrary, the statistically significant differences are observed in the following two constructs: Security and Privacy Risks ($p = 0.000$) and Consumer Inclusivity ($p = 0.019$). In the case of Security & Privacy Risks, employees with middle and high-level experience (especially those with 810 years) give more risk ratings than those with less than 1 year and 13 years of experience. It implies that the more employees are exposed to the mechanics of retail business and digital technologies, the more they are aware of the weaknesses associated with the customer

data management, cyber security, online fraud, and privacy compliance issues related to the Immersive Commerce platforms. The more experienced employees might have been exposed to more working situations that involved risks of data and therefore they might be more wary and sensitive to the problems. Conversely, employees who are extremely experienced (10 and above) are fairly mediocre in concern, which might be because of the assuredness that is a result of a long time in the industry or that is as a result of adopted risk-referent behavioral patterns.

Consumer Inclusivity is also a construct where there is a high variation in experience groups. The middle-range experience (4 -7 years and 8-10 years) employees are more likely to score inclusiveness issues lower than fresh employees or highly experienced. This implies that new entrants and practitioners might find it more difficult than the mid-experience groups to find Immersive Commerce technologies to accommodate relatively diverse consumer segments on issues of accessibility, ease of use, and the ability to accommodate older, rural, or digitally illiterate clients. New workers might not be fully exposed to the pattern of consumer behavior, and very experienced workers might be more aware of the problem of inclusiveness in retail that has been long-standing.

On the whole, the findings suggest that though most of the perceived risks of Immersive Commerce are apprehended in a similar way at all levels of experience, certain fears in the area of digital security and consumer inclusiveness are strongly dependent on professional experience that employees have.

Table 6.36

Multiple Comparison of Year of Experience

Construct	Year of Experience (I)	Year of Experience (J)	Mean Difference (I–J)	Std. Error	Sig.
Security & Privacy	1–3 years	4–7 years	-0.24642*	0.07034	0.005
	1–3 years	8–10 years	-0.37854*	0.07094	0.000

Risks	8–10 years	10+ years	0.34354*	0.11431	0.024
Inclusivity	1–3 years	8–10 years	0.21397*	0.06654	0.012
	8–10 years	1–3 years	-0.21397*	0.06654	0.012

The Tukey HSD post-hoc test demonstrates that perception difference of employees on Security and Privacy Authority and Inclusiveness also significantly differ among some groups of employees basing on experience. The workers with 1-3 years experience in the field of Security and Privacy risks are experiencing a significantly lesser security concern when compared to the workers with 4-7 years experience and 8-10 years experience, which implies that middle career workers are more likely to be aware of data protection and privacy risks of Immersive technologies. Also, the workers experience with 8-10 years experience are much more characterized in terms of security and privacy issues than the workers experience over 10 years old which could be a sign that over experienced staffs could be more at ease or accustomed to such issues. In terms of Inclusivity, the employees with 1 years experience through to 3 years experience have far more concerns about inclusivity than the other employees with 8 years through to the 10 years experience implying that the employees who are in the early stages of their career are more likely to believe that the issues are of concern to them as compared to the employee who are in the middle range of experience. In general, the post-hoc results indicate that the impressions of digital security risks and inclusiveness of the consumers are not uniform but strongly rely on the experience of the employees in the retailing sector.

6.8.6 Position/Designation **Analysis**

This section deals to check whether there is any influence of Position/Designation of retailers on risks and barriers to the effective Implementation of Immersive Commerce. ANOVA test is conducted to understand the perceptive of retailers.

The main hypothesis is

H1: There is a significant difference in the perception of risks and barriers to the effective Implementation of Immersive Commerce across the Position/Designation of retailers.

Table 6.37

Hypothesis Development

Hypothesis No.	Hypothesis
H1a	There is a significant difference in the Position/Designation of retailers and their perception of **financial risks** in Immersive Commerce.
H1b	There is a significant in the Position/Designation of retailers and their perception of **Operational risks** in Immersive Commerce.
H1c	There is a significant difference in Position/Designation of retailers and their perception of **security and privacy risks** in Immersive Commerce.
H1d	There is a significant difference in Position/Designation of retailers and their perception of **Consumer Inclusivity** in Immersive Commerce.
H1e	There is a significant difference in Position/Designation of retailers and their perception of **Consumer Barrier** in Immersive Commerce.

Table 6.38

ANOVA showing the Position/Designation and Risks and Barriers

Construct	Position / Designation	N	Mean	SD	F-value	p-value	Remarks
Financial Risks	Franchise Partner	74	2.3784	0.5632	0.744	0.527	Not Significant
	Manager	109	2.2592	0.5599			
	Owner	175	2.31	0.5021			
	Others	32	2.2891	0.5539			
	Total	390	2.3071	0.5343			
Operational	Franchise	74	2.2466	0.5403	0.338	0.798	Not Significant

Risks	Partner						
	Manager	109	2.2798	0.5781			
	Owner	175	2.3029	0.5758			
	Others	32	2.3594	0.6219			
	Total	390	2.2904	0.5723			
Security & Privacy Risks	Franchise Partner	74	1.4595	0.47	2.956	0.032	Significant
	Manager	109	1.6193	0.4443			
	Owner	175	1.64	0.4301			
	Others	32	1.5938	0.4989			
	Total	390	1.5962	0.4511			
Consumer Inclusivity	Franchise Partner	74	1.6655	0.3931	0.656	0.579	Not Significant
	Manager	109	1.6284	0.4298			
	Owner	175	1.6486	0.417			
	Others	32	1.7422	0.3674			
	Total	390	1.6538	0.4119			
Consumer Barriers	Franchise Partner	74	2.2838	0.4831	0.371	0.774	Not Significant
	Manager	109	2.3372	0.4992			
	Owner	175	2.2929	0.522			
	Others	32	2.3672	0.5158			
	Total	390	2.3096	0.5068			

The ANOVA results show that Position/Designation does not significantly influence most risks and barriers, except for Security & Privacy Risks. In Financial riks, the difference was found to be low (Sum of Squares = 0.638, F = 0.744, p = 0.527), indicating that no significant difference across designations. Operational Risks showed no meaningful difference (Sum of Squares = 0.333, F = 0.338, p = 0.798), and Consumer Inclusivity barriers also indicate statistically non-

significant (Sum of Squares = 0.335, F = 0.656, p = 0.579). Consumer Barriers show the same pattern with no significant effect (Sum of Squares = 0.287, F = 0.371, p = 0.774). However, Security & Privacy Risks displayed a significant difference across designations (Sum of Squares = 1.778, F = 2.956, p = 0.032), suggesting that employees at different hierarchical levels perceive security-related challenges differently. Overall, except for security and privacy risks, all other risks and barriers appear to be perceived similarly across different position/designation groups.

Table 6.38

Multiple Comparison Showing Position/Designation

(I) Position/Designation		Mean Difference (I-J)	Std. Error	Sig.
Franchise Partner	Manager	-.15981	.06743	.085
	Owner	-.18054*	.06208	.020
	Others	-.13429	.09472	.489
Manager	Franchise Partner	.15981	.06743	.085
	Owner	-.02073	.05463	.981
	Others	.02552	.09001	.992
Owner	Franchise Partner	.18054*	.06208	.020
	Manager	.02073	.05463	.981
	Others	.04625	.08607	.950
Others	Franchise Partner	.13429	.09472	.489
	Manager	-.02552	.09001	.992
	Owner	-.04625	.08607	.950
*. The mean difference is significant at the 0.05 level.				

The Tukey HSD post hoc results for the dependent variable **Security & Privacy Risks** show that **position/designation has a limited but notable effect** on how respondents perceive these risks. Among all pair wise comparisons, **only one difference is statistically significant** at the 0.05 level: **Owners report significantly higher Security & Privacy Risk scores compared to Franchise Partners** (mean difference = 0.18054, p = .020). This confirms that owners may feel

more accountable for privacy and security of data and its protection and compliance, and technological vulnerabilities. All other comparisons between Managers, Others, and Franchise Partners—are not significant ($p > .05$), indicating that these groups perceive security and privacy risks at relatively similar levels. Overall, **only Owners differ meaningfully from Franchise Partners**, while the remaining groups show no substantial differences in their perception of security and privacy risks.

6.8.7 Type of Retail (Retail Format) **Analysis**

This section deals to check whether there is any influence of retail format of the firm on risks and barriers to the effective Implementation of Immersive Commerce. ANOVA test is conducted to understand the perceptive of retailers.

The main hypothesis is

H1: There is a significant difference in the perception of risks and barriers to the effective Implementation of Immersive Commerce across the retail format of the firm.

Table 6.39

Hypothesis Development

Hypothesis No.	**Hypothesis**
H1a	There is a significant difference in the retail format of the firm and their perception of **financial risks** in Immersive Commerce.
H1b	There is a significant in the retail format of the firm and their perception of **Operational risks** in Immersive Commerce.
H1c	There is a significant difference in retail format of the firm and their perception of **security and privacy risks** in Immersive Commerce.
H1d	There is a significant difference in retail format of the firm and their perception of **Consumer Inclusivity** in Immersive Commerce.
H1e	There is a significant difference in retail format of the firm and their perception

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	of **Consumer Barrier** in Immersive Commerce.

Table 6.40

ANOVA table showing Retail format and Risks and Barriers

Construct	**Retail Format**	**N**	**Mean**	**SD**	**F-value**	**p-value**	**Remarks**
Financial Risks	Brick & Mortar	18	2.4028	0.5365	1.727	0.179	Not Significant
	E-Commerce/M-Commerce	144	2.3611	0.471			
	Omni Channel	228	2.2654	0.5688			
Operational Risks	Brick & Mortar	18	2.2917	0.4794	1.502	0.224	Not Significant
	E-Commerce/M-Commerce	144	2.2257	0.6197			
	Omni Channel	228	2.3311	0.5458			
Security & Privacy Risks	Brick & Mortar	18	1.6111	0.4132	0.017	0.983	Not Significant
	E-Commerce/M-Commerce	144	1.592	0.4587			
	Omni Channel	228	1.5976	0.4509			
Consumer Inclusivity	Brick & Mortar	18	1.4167	0.4697	5.081	0.007	Significant
	E-Commerce/M-Commerce	144	1.717	0.36			
	Omni Channel	228	1.6327	0.4304			
Consumer Barriers	Brick & Mortar	18	2.5278	0.4363	2.301	0.102	Not Significant
	E-Commerce/M-Commerce	144	2.3333	0.4849			
	Omni Channel	228	2.2774	0.5222			

Financial Risks results are 2.4028 (SD = 0.53646, N = 18) in Brick-and-Mortar retailers, 2.3611 (SD = 0.47099, N = 144) in E-Commerce/M-Commerce and 2.2654 (SD = 0.56882, N = 228) in Omni-Channel retailers. The ANOVA value of Financial Risks (F = 1.727, p =.179) shows that no statistically significant difference exists between the three formats. In the case of Operational Risks, the mean is 2.2917 (SD = 0.47935, N = 18) in the case of Brick-and-Mortar, 2.2257 (SD = 0.61969, N = 144) in the case of E-Commerce/M-Commerce, and 2.3311 (SD = 0.54580, N = 228) in the case of Omni-Channel retailers. The ANOVA test does not find any significant difference between Operational Risks (F = 1.502, p =.224). The mean, in the case of Security and Privacy Risks, is 1.6111 (SD = 0.41322, N = 18) in the case of Brick-and-Mortar retailers, 1.5920 (SD = 0.45874, N = 144) in the case of E-Commerce/M-Commerce, and 1.5976 (SD = 0.45085, N = 228) in the case of Omni- The ANOVA value (F = 0.017, p =.983) shows no significant difference between different format of retail. In the category of Consumer Barriers, the Brick-and-Mortar retailer has the highest mean of 2.5278 (SD = 0.43630, N = 18), then E-Commerce/M-Commerce with 2.3333 (SD = 0.48491, N = 144) and finally Omni-Channel with 2.2774 (SD = 0.52216, N = 228). The value of the ANOVA of Consumer Barriers (F = 2.301, p = .102) proves that the differences between the three retail formats are not statistically significant.

The only variable that has a statistically significant difference in retail format is Consumer Inclusivity. The mean of Brick-and-Mortar retailers is 1.4167 (SD = 0.46967, N = 18), E-Commerce/M-Commerce retailers are 1.7170 (SD = 0.35998, N = 144), and the Omni-Channel retailers have a mean of 1.6327 (SD = 0.43039, N = 228). The Consumer Inclusivity ANOVA test results in F = 5.081 and p =.007 which means that there is a significant difference between the three groups.

Table 6.42

Multiple Comparisons between various retail format and consumer inclusivity

(I) Type of Retail	Mean Difference (I-J)	Std. Error	Sig.

Brick and Mortar	E-Commerce/M-Commerce	-.30035*	.10193	.010
	Omni Channel	-.21601	.09982	.079
E-Commerce/M-Commerce	Brick and Mortar	.30035*	.10193	.010
	Omni Channel	.08434	.04340	.128
Omni Channel	Brick and Mortar	.21601	.09982	.079
	E-Commerce/M-Commerce	-.08434	.04340	.128
*. The mean difference is significant at the 0.05 level.				

The Tukey HSD post-hoc results of the Consumer Inclusivity indicate that the statistically significant difference between Brick-and-Mortar retailers and E-Commerce/M-Commerce retailers is only (Mean Difference = -0.30035, p =.010). This implies that E-Commerce/M-Commerce formats score much higher in Consumer Inclusiveness scores than the Brick-and-Mortar stores. Conversely, the alpha of the differences between Brick-and-Mortar and Omni-Channel, E-Commerce/M-Commerce and Omni-Channel are not significant since their alpha values are greater than the alpha of 0.05. Omni-Channel display relatively more significant perceptions of inclusivity as opposed to Brick-and-Mortar and slightly lower than E-Commerce/M-Commerce, the differences are not significant enough to be viewed as meaningful in statistical terms.

Thus, the results suggest that retail formats can be seen as more inclusive, probably because they are more accessible, can be customized and offer a variety of ways to support customers, and traditional stores are lagging in their intentions to make their offerings a more inclusive environment to all types of consumers.

6.8.8 Annual Turnover of the firm Analysis

This section deals to check whether there is any influence of Annual turnover of the firm on risks and barriers to the effective Implementation of Immersive Commerce. ANOVA test is conducted to understand the perceptive of retailers.

The main hypothesis is

H1: There is a significant difference in the perception of risks and barriers to the effective Implementation of Immersive Commerce across the Annual turnover of the firm.

Table 6.43

Hypothesis Development

Hypothesis No.	Hypothesis
H1a	There is a significant difference in the Annual turnover of the firm and their perception of **financial risks** in Immersive Commerce.
H1b	There is a significant in the Annual turnover of the firm and their perception of **Operational risks** in Immersive Commerce.
H1c	There is a significant difference in Annual turnover of the firm and their perception of **security and privacy risks** in Immersive Commerce.
H1d	There is a significant difference in Annual turnover of the firm and their perception of **Consumer Inclusivity** in Immersive Commerce.
H1e	There is a significant difference in Annual turnover of the firm and their perception of **Consumer Barrier** in Immersive Commerce.

Table 6.44

ANOVA table showing Annual Turnover and Risks and Barriers

Construct	Annual Turnover	N	Mean	SD	F-value	p-value	Remarks
Financial Risks	10 Crore and Above	70	2.2893	0.52585	0.533	0.712	Not significant
	5 Crore – 10 Crore	89	2.3483	0.4966			
	1 Crore – 5 Crore	131	2.3015	0.56562			
	50 Lakhs – 1 Crore	79	2.3228	0.54325			

	Less than 50 Lakhs	21	2.1667	0.50208			
Operational Risks	10 Crore and Above	70	2.3571	0.55425	0.657	0.622	Not significant
	5 Crore – 10 Crore	89	2.2612	0.58619			
	1 Crore – 5 Crore	131	2.2481	0.58712			
	50 Lakhs – 1 Crore	79	2.307	0.54736			
	Less than 50 Lakhs	21	2.3929	0.58934			
Security & Privacy Risks	10 Crore and Above	70	1.6393	0.44971	0.757	0.554	Not significant
	5 Crore – 10 Crore	89	1.5674	0.45814			
	1 Crore – 5 Crore	131	1.6221	0.44975			
	50 Lakhs – 1 Crore	79	1.5791	0.45387			
	Less than 50 Lakhs	21	1.4762	0.43232			
Consumer Inclusivity	10 Crore and Above	70	1.6321	0.4438	0.332	0.857	Not significant
	5 Crore – 10 Crore	89	1.6657	0.41448			
	1 Crore – 5 Crore	131	1.6393	0.40686			
	50 Lakhs – 1 Crore	79	1.6614	0.40636			
	Less than 50 Lakhs	21	1.7381	0.36637			
Consumer Barriers	10 Crore and Above	70	2.2786	0.52912	1.321	0.261	Not significant
	5 Crore – 10 Crore	89	2.3764	0.46178			
	1 Crore – 5 Crore	131	2.3206	0.506			
	50 Lakhs – 1 Crore	79	2.2975	0.53421			
	Less than 50 Lakhs	21	2.1071	0.49731			

The result of ANOVA of risks and barriers among various annual turnover of the firm suggest that annual turnover has no statistically significant effect on any of the tested constructs, such as Financial Risks, Operational Risks, Security and Privacy Risks, Consumer Inclusivity and Consumer Barriers as all p-values are more than 0.05. Despite the insignificance of the differences, the descriptive statistics give valuable information about trends in turnover

categories. Financial Risks, comparatively the scores are similar with slightly higher concerns among retailers in the turnover level of 5 Crore-10 Crore and relatively lower concerns among retailers with less than 50 Lakhs suggesting that financial risk perceptions are far and wide spread and are not directly linked to the business size. In the same way, with Operational Risks, the turnover groups have virtually the same mean scores, implying that all the difficulties associated with system performance, technology operations, and integration issues are shared across the small and large retailers. Security/Privacy Risk presents mean values slightly smaller in lower turnover businesses, which suggests slightly less concern, perhaps because of less complex digital environments, though this result is not significant. Consumer Inclusivity scores are also not significantly different which means that the issue about serving different customer segments remains the same regardless of the scale of business. The same trend is found in the construct Consumer Barriers with the mid-range turnover retailers (510 Crore) reporting a bit more concerns as compared to small retailers (below 50 Lakhs) which have relatively less means, probably due to the complexity of consumer interaction. In general, the findings underscore that retailers irrespective of turnover encounter the same amount of risks and obstacles in deploying Immersive Commerce strategies thus suggesting that the problem is structural and will be experienced across the industry and not just based on business turnover. This consistency means that policy interventions, capacity building tools and technological assistance ought to focus on solving issues on an ecosystem level, to the benefit of the retailers of all financial backgrounds.

6.7 Structural Equation Modelling of Negative Impact Factors Influencing the Successful Implementation of Immersive Commerce

The Structural Equation Modelling is adopted to establish the relationship between the Implementation and growth of Immersive Commerce and its negative impact factors like, Challenges, risks and barriers.

90 Exploratory Factor Analysis (EFA) was conducted to identify the factor which is suitable for further analysis. The Kaiser–Meyer–Olkin (KMO) test value indicates the acceptable threshold , 51 which is greater than 0.60 which represents sampling adequacy and Bartlett's Test of Sphericity,

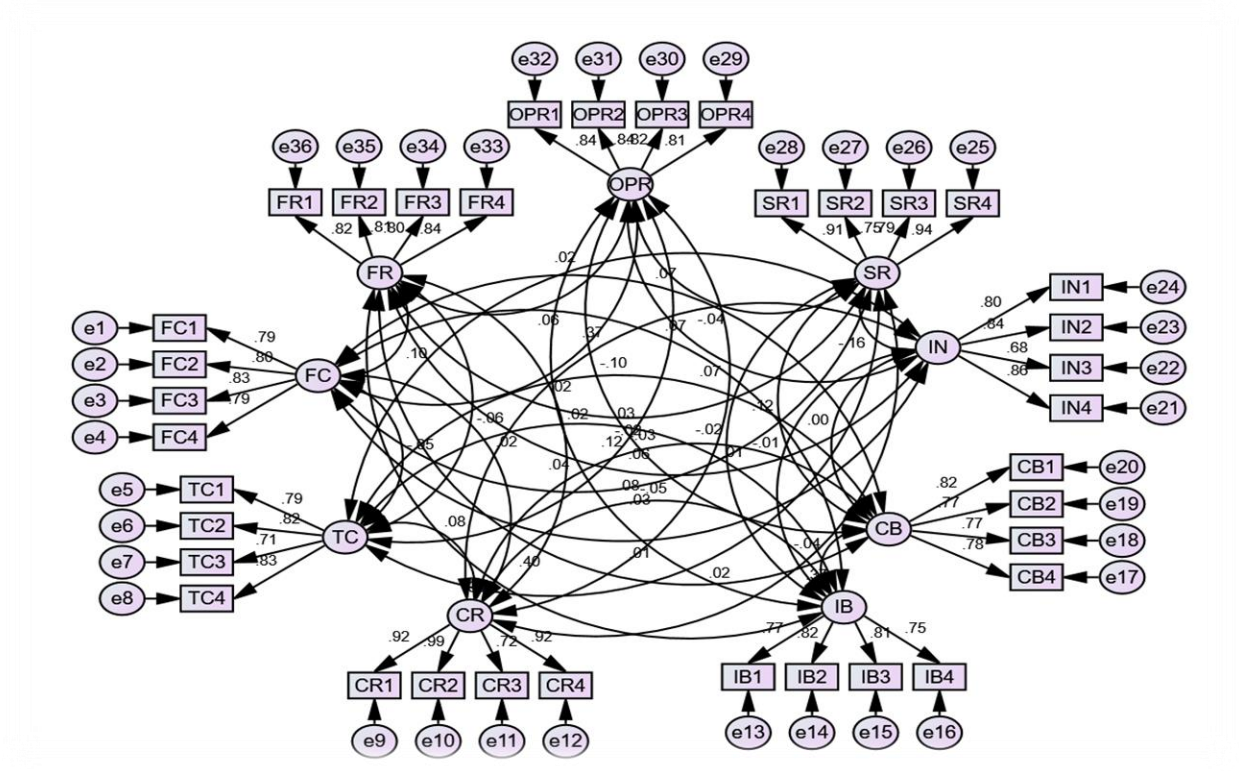
which was significant i.e., p-value is less than 0.05 implying correlations among items (Hair et al., 2019).

Confirmatory Factor Analysis (CFA)

The following figure shows the Confirmatory Factor Analysis

Figure 6.2

Measurement Model of Negative Impact Factors that affect Successful Implementation of Immersive Commerce



Construct validity is measured through convergent validity and discriminant validity.

Convergent Validity

The following table shows the results of convergent validity of various construct employed in the model

Table 6.44

Convergent Validity

Construct	Item	Factor Loadings	CR	AVE
Financial Constraints	FC1	0.787	0.88	0.64
	FC2	0.805		
	FC3	0.825		
	FC4	0.793		
Tech-related Constraints	TC1	0.795	0.87	0.63
	TC2	0.821		
	TC3	0.709		
	TC4	0.831		
Infrastructure Blockage	IB1	0.765	0.87	0.62
	IB2	0.819		
	IB3	0.808		
	IB4	0.753		
Consumer Readiness Issues	CR1	0.921	0.94	0.8
	CR2	0.992		
	CR3	0.721		
	CR4	0.92		
Financial Risks	FR1	0.819	0.89	0.67
	FR2	0.812		
	FR3	0.798		
	FR4	0.842		
Operational Risks	OPR1	0.837	0.9	0.68
	OPR2	0.836		
	OPR3	0.819		
	OPR4	0.815		

Security & Privacy Risks	SR1	0.914	0.91	0.73
	SR2	0.752		
	SR3	0.792		
	SR4	0.943		
Consumer Barriers	CB1	0.825	0.87	0.62
	CB2	0.77		
	CB3	0.765		
	CB4	0.781		
Consumer Inclusivity	IN1	0.805	0.88	0.64
	IN2	0.843		
	IN3	0.683		
	IN4	0.861		

The above table indicates that in convergent validity, all the constructs is under acceptable threshold with factor loadings ranging from 0.683 to 0.992. Each construct has composite reliability (CR) is varies from 0.827 to 0.94, which exceed the recommended threshold of 0.70 indicating strong internal consistency and construct reliability. Average Variance Extracted (AVE) which is above 0.5, ranging from 0.62 to 0.8. So, all the constructs are satisfied.

Discriminant Validity

Discriminant validity was also evaluated as the square root of AVE for each construct was more than the inter-construct correlations, demonstrating that each construct is distinct (Hair et al., 2019).

Table 6.45

Discriminant Validity

Construct	FC	FR	OPR	SR	CB	IB	IN	TC	CR
FC	**0.8**								
FR	0.104	**0.82**							

OPR	0.023	0.06	**0.82**						
SR	0.034	-0.021	-0.044	**0.85**					
CB	0.07	0.405	0.117	0.118	**0.79**				
IB	0.074	0.018	0.037	-0.021	-0.04	**0.79**			
IN	0.005	0.076	0.072	-0.16	-0.003	-0.007	**0.8**		
TC	-0.053	-0.063	0.058	0.018	-0.098	0.028	0.022	**0.79**	
CR	0.024	0.024	0.012	0.372	-0.029	-0.054	0.375	0.076	**0.89**

The value represents the square roots of AVE (√AVE) for each constructs. The Confirmatory model indicates strong discriminant validity, which ranges from **0.79 to 0.89**, is consistently higher than the inter-construct correlations, which range from –0.160 to 0.405. This confirms that each construct is distinct and adequately differentiated from the others.

Table 6.46

Model Fit Indices of Confirmatory Analysis Model

Fit Index	**Recommended Threshold**	**Obtained Value**	**Interpretation**
χ^2/df (Chi-square)	< 3.0 (good)	**2.324**	Good fit
GFI	≥ 0.90 (acceptable ≥ 0.85)	**0.865**	Acceptable
AGFI	≥ 0.80	**0.839**	Acceptable
RMR	< 0.05 (good)	**0.012**	Good
NFI	≥ 0.90 (acceptable ≥ 0.80)	**0.869**	Acceptable
RFI	≥ 0.90	**0.852**	Acceptable
IFI	≥ 0.90	**0.921**	Good
TLI	≥ 0.90	**0.91**	Good
CFI	≥ 0.90	**0.92**	Good
RMSEA	< 0.08 (good), < 0.05 (excellent)	**0.058**	Good

From the above information, it is confirmed that, all the constructs have good internal consistency and validity and this constructs is suitable for Structural Equation Modelling.

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Structural Equation Modelling

Here, Structural Equation Modelling is developed for estimating direct and indirect relationships among various constructs which hinder the effectiveness adoption of Immersive Commerce. The model reveals a impact of negative influence factors on Successful Implementation of Immersive Commerce.

Hypotheses Development

Since, the Successful Implementation of the Immersive Commerce is the central outcome of the study where it causes some constraints, risks and barriers which hinders its adoptions. All the negative factors hypothesized together in this section.

The main hypotheses for the study is;

H1: Negative impact factors have a **significant negative effect** on the Successful Implementation of Immersive Commerce in modern Indian retailing.

Table 6.47

Hypothesis Development

Sl No.	**Hypotheses Statements**
H1a	Financial Constraints have a significant negative impact on the Successful Implementation of Immersive Commerce.
H1b	Tech-Related Constraints have a significant negative impact on the Successful Implementation of Immersive Commerce.
H1c	Infrastructure Blockage has a significant negative impact on the Successful Implementation of Immersive Commerce.
H1d	Customer Readiness Issues have a significant negative impact on the Successful Implementation of Immersive Commerce.
H1e	Financial risks have a significant negative impact on the Successful Implementation of Immersive Commerce.

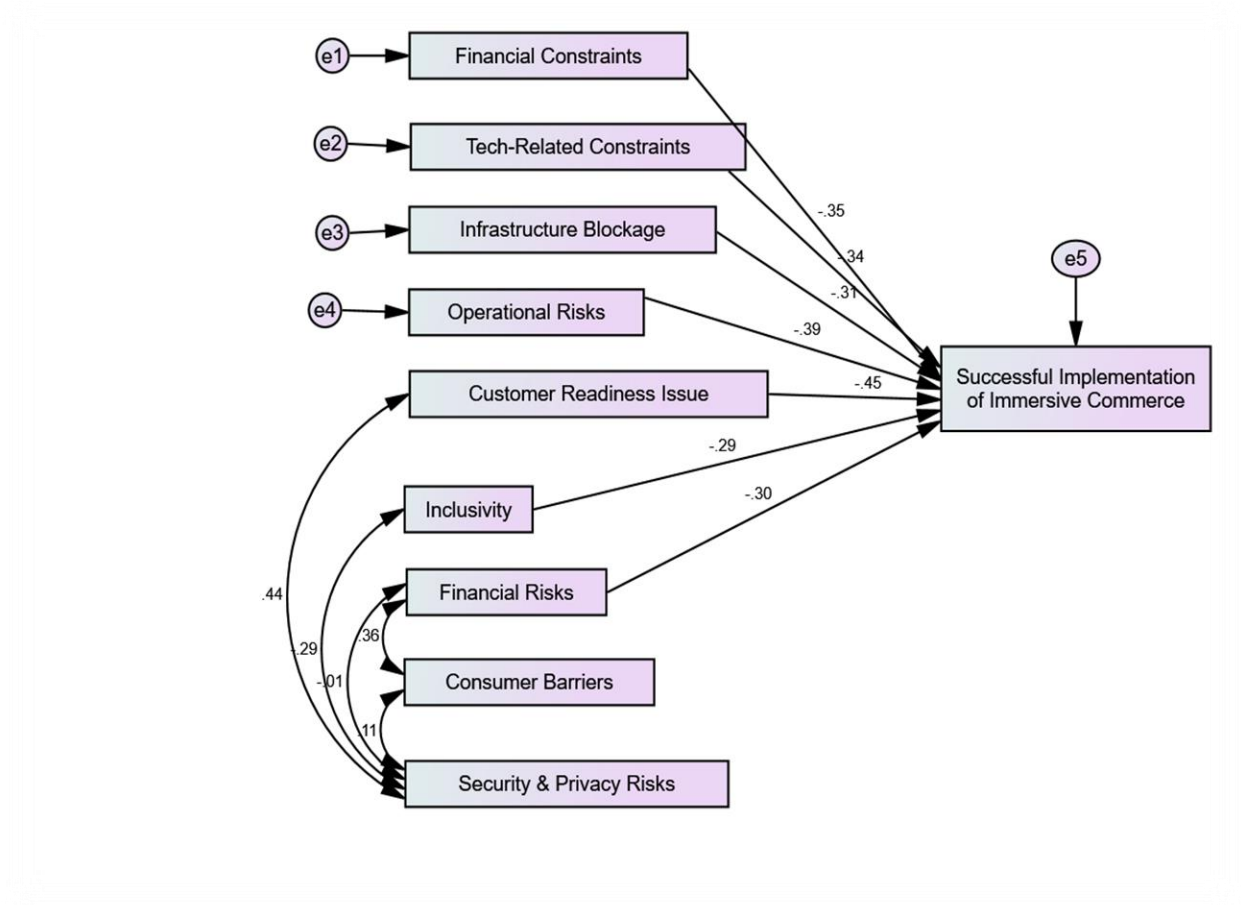
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H1f	Operational risks have a significant negative impact on the Successful Implementation of Immersive Commerce.
H1g	Inclusivity have a significant negative impact on the Successful Implementation of Immersive Commerce.

Following figure Shows the Structural Equation Modelling, indicates the relationship among Negative Impact Factors and Successful Implementation of Immersive Commerce.

Figure 6.3

Structural Equation Modelling shows the relationship of Negative Impact Factors



The variables used in the model are;

Observed, endogenous variables

Financial Constraints

Tech-related Constraints

Infrastructure Blockage

Operational Risks

Successful Implementation of Immersive Commerce

Observed, exogenous variables

Customer Readiness Issue

Financial Risks

Consumer Barriers

Security and Privacy Risks

Inclusivity

Unobserved, exogenous variables

e1 - Error term of Financial Constraints

e2 - Error term of Tech-related Constraints

e3 – Error term of Infrastructure Blockage

e4 – Error term of Operational Risks

e5 – Error term of Successful Implementation of Immersive Commerce

Results of Hypotheses Testing

The below table shows the Hypotheses Testing results which includes the path estimates, Standard error of estimates, Critical value and Significant values.

Table 6.48

Hypothesis Testing results

Hypothesis Statement	**Exogenous Variable**	**Endogenous Variable**	**Estimate**	**S.E.**	**C.R.**	**P-value**	**Std. Estimate (β)**	**Hypothesis Status**

Financial Constraints → Successful Implementation of Immersive Commerce	FC	SIIC	-0.108	0.01	-18.78	***	-0.35	Supported
Tech-Related Constraints → Successful Implementation of Immersive Commerce	TC	SIIC	-0.104	0.01	-18.2	***	-0.339	Supported
Infrastructure Blockage → Successful Implementation of Immersive Commerce	IB	SIIC	-0.102	0.01	-16.8	***	-0.313	Supported
Customer Readiness Issue → Successful Implementation of Immersive Commerce	CR	SIIC	-0.17	0.01	-24.35	***	-0.454	Supported
Financial Risks → Successful Implementation of Immersive Commerce	FR	SIIC	-0.095	0.01	-16.19	***	-0.302	Supported

Operational Risks → Successful Implementation of Immersive Commerce	OPR	SIIC	-0.113	0.01	-20.74	***	-0.387	Supported
Customer Inclusivity → Successful Implementation of Immersive Commerce	IN	SIIC	-0.116	0.01	-15.32	***	-0.286	Supported

The description about the results of each hypotheses testing through Structural Equation Modellling is given as follows;

Effect of Financial Constraints on Successful Implementation of Immersive Commerce

The result indicates that the retailers who suffer more financial constraints have express significantly lower confidence in Successful adoption of Immersive Commerce. The findings aligns that the financial constraints has negative impact on SIIC, where (β = –.350). Retailers often view Immersive technologies as huge capital-intensive investments, and lack of budgets which cause poor Implementations and innovations. The hypothesis is accepted and therefore, financial constraints substantially weaken retailers' perceived ability to implement Immersive Commerce effectively.

Effect of Tech-related constraints on Successful Implementation of Immersive Commerce

The result shows that the Retailers' technical challenges create substantial effect to implement Immersive Commerce technologies. The negative path coefficient (β = –.339) influence retailers' perception that system incompatibility, unreliable AR/VR performance, and limited technical standards reduce their capacity to implement Immersive Commerce. The existing literature also

mentions that the complexity of technology is the primary challenge that retailers believe faces them due to the fact that Immersive platforms need qualified skills and reliable digital experiences (Sharma and Singh, 2022). From the retailers' viewpoint, overcoming such technical issues is necessary for ensuring smooth operations and customer experience. The hypothesis is supported, thus, technology-related constraints significantly reduce retailers' perceived feasibility of adopting Immersive Commerce.

Effect of Consumer Readiness Issue on Successful Implementation of Immersive Commerce

Retailers perceive customer readiness as the strongest determinant affecting Immersive Commerce Implementation. The lack of digital literacy, limited familiarity with Immersive technologies and hesitation to use new interfaces largely affect the Successful initiatives of Immersive Commerce since the beta value is a large negative coefficient ($\beta = –.454$) . Retailers raise some concerns related to the difficulties that without customers which are technologically at the ready, then even advanced Immersive solutions will not be able to create attention or values. Hence, customer readiness issues represent the most influential negative factor shaping retailers' perceptions of Immersive technology Implementation.

Effect of Financial Risks on Successful Implementation of Immersive Commerce

Retailers also perceive financial risks as a notable constraint to adopting Immersive Commerce. The negative coefficient ($\beta = –.302$) implies that constraints regarding insufficient Return on investment, financial uncertainity, poor technology performance and potential financial losses reduce retailers' perception towards Successful Implementation. Retailers feel that Immersive Commerce may not immediately generate revenue. This knowledge will lead to the reduction of the willingness to implement Immersive technologies before it is insured that there will be a definite financial outcome. Thus, financial risk perceptions have a meaningful negative impact on adoption feasibility.

Effect of Operational Risks on Successful Implementation of Immersive Commerce

The results indicate that the Retailers perceive operational risks has negative effect ((β = –.387) on the effectiveness of Immersive Commerce. The major impediments that the retailers faced on the operational risk are operational disruptions, risky systems, and poor maintenance and tech breakdowns. This will considered as the substantial hindrance indicates that retailers associate operational constraints leads to reduced confidence in the Successful Implementation and deployment of Immersive technologies. The hypothesis is supported and hence operational risks significantly diminish retailers' perceived ability to implement Immersive Commerce smoothly. So, the Immersive Commerce requires a high level of reliability in operational maintenance and any breakdowns can quickly affect trust in the Immersive system.

Effect of Customer Inclusivity Issues on Successful Implementation of Immersive Commerce

There is a negative relationship between retailers perception towards inclusivity issue and Successful Implementation of Immersive Commerce Retailers perceive inclusivity issues such as hard usage to some group of retailers, usability challenges for elderly people, differently abled individuals, or users with low digital literacy because of language and culture as barriers that hinder Immersive Commerce Implementation. The negative relationship (β = –.286) confirming that retailers believe Immersive systems must be accessible to diverse customer groups, not for differentiated targeting to ensure Successful adoption. This led to lower customer engagement and limited deployment of Immersive. Thus, inclusivity issues moderately reduce retailers' perceived ability to execute Immersive technologies Successfully.

Effect of **Infrastructure Blockage on Successful Implementation of Immersive Commerce**

The negative value (-.313) indicates that the retailers' perception on the constraint of infrastructure is a key requirement in the performance of the Immersive technology. Infrastructural blockage like poor internet connection, limited digital infrastructure in the store, and insufficient hardware support is perceived as a major impediment to Immersive Commerce by retailers. The negative correlation (β = -.313) indicates that retailers feel that infrastructure preparedness is essential to the performance of Immersive technology. On the side of the retailers, the Immersive experiences are not possible as they are because of ineffective high-

speed networks and devices. As such, blockages in infrastructure have significant implications of negatively affecting the perceived probability of the Successful Implementation of Immersive Commerce by retailers.

6.8 Conclusion

This chapter concludes that the Successful Implementation of Immersive Commerce in modern Indian retailing is significantly constrained by multiple negative impact factors, including financial constraints, technology-related and infrastructural limitations, customer readiness issues, operational risks, security and privacy concerns, and inclusivity barriers. The findings indicate that these challenges are largely systemic and uniformly experienced across retailers, regardless of demographic or firm-specific characteristics, though variations exist in perceptions of customer readiness, security, and inclusivity. Structural Equation Modelling confirms that all identified negative factors have a significant adverse effect on Successful Implementation, with customer readiness and operational risks exerting the strongest influence. Overall, unless these challenges, risks, and barriers are strategically addressed, Immersive Commerce adoption is likely to remain cautious, limited, and unsustainable in the Indian retail context.

CHAPTER 7

SUMMARY, FINDINGS AND CONCLUSIONS

7.1 Introduction

Immersive Commerce is considered as a strategic approach for strengthening competitiveness in the evolving Indian retail landscape rather than as a mere technological novelty. Retailers largely perceive Immersive Commerce as a means to enhance customer interaction, improve product understanding, and create engaging shopping environments that blend the advantages of physical and digital retailing. The retailers recognize a clear shift in consumer expectations toward experience-oriented shopping, where engagement, visualization, and interactivity has a key role in influencing the purchase decisions. As a result, Immersive Commerce is seen as a valuable pathway for retailers to differentiate their offerings, reinforce brand presence, and remain relevant in an increasingly technology-driven market.

At the same time, the retailers adopt a cautious and pragmatic outlook toward Immersive Commerce Implementation. Rather than expecting immediate financial gains, retailers generally view Immersive Commerce as a long-term investment that contributes to sustained customer relationships and gradual performance improvement. This perspective leads retailers to carefully evaluate costs, operational feasibility, and alignment with existing business models before adopting Immersive solutions. Many retailers prefer phased or selective Implementation, testing Immersive applications in specific product categories or locations before wider rollout. This approach reflects a strong emphasis on strategic fit and organizational readiness, suggesting that Successful Immersive Commerce adoption depends as much on managerial planning as on technological capability.

Retailers also perceive Immersive Commerce as a tool that can significantly influence customer decision-making by reducing uncertainty and increasing confidence during the shopping process. The ability to present products in interactive and realistic formats is viewed as particularly beneficial in minimizing hesitation and improving satisfaction. However, retailers emphasize that these benefits are contingent upon seamless execution. The findings show that technical

instability, poor interface design, or inconsistent performance can undermine customer trust and negatively affect brand image. Consequently, retailers stress the importance of reliability, ease of use, and smooth integration of Immersive features into everyday retail operations.

Risk awareness emerges as a central theme in shaping retailers' attitudes toward Immersive Commerce. Retailers express concerns related to financial exposure, operational disruption, and data security especially as Immersive technologies rely heavily on digital platforms and customer data. These risks encourage retailers to adopt more structured planning, careful vendor selection, and stronger control mechanisms. Rather than deterring adoption, such concerns often promote a more disciplined and measured approach, where Immersive Commerce is implemented with clear oversight and performance monitoring.

The retailers also pointed out the need to balance innovation with inclusivity. Retailers acknowledge that while Immersive Commerce appeals strongly to technologically confident customers, it may not be equally accessible to all consumer segments. The findings suggest that retailers are mindful of avoiding customer exclusion by maintaining alternative shopping options and ensuring that Immersive experiences complement rather than replace traditional retail interactions. This inclusive mindset reflects retailers' understanding of India's diverse consumer base and varying levels of digital readiness.

Finally, the outcomes of Immersive Commerce are closely tied to the broader Indian retail context. Differences in infrastructure quality, regional digital maturity, and market conditions influence how effectively Immersive strategies can be implemented. Retailers recognize the importance of adapting Immersive Commerce initiatives to local realities rather than applying uniform strategies across locations. In summary, from the retailers' perspective, the major findings position Immersive Commerce as a promising but demanding strategic initiative—one that offers meaningful opportunities for enhanced customer engagement and differentiation, while requiring careful planning, risk management, and contextual sensitivity to achieve sustainable success in modern Indian retailing.

7.2 Research Problem in Brief

Immersive Commerce has resulted as a transformative force in global retailing, particularly in developed markets where retailers increasingly deploy advanced digital technologies to create interactive, experiential, and engaging shopping environments. In these contexts, Immersive tools are strategically used to enhance product understanding, personalize customer journeys, reduce purchase uncertainty, and strengthen brand differentiation. However, despite India being one of the fastest-growing retail and digital consumer markets, the strategic application of Immersive Commerce within Indian retail remains limited, fragmented, and insufficiently understood. A substantial portion of existing scholarly work and industry-driven insights is concentrated on western economies, where consumer behaviour, technological infrastructure, purchasing power, and regulatory environments differ markedly from those in India. As a result, the applicability of such findings to the Indian retail ecosystem is questionable. Indian retail is characterised by extreme heterogeneity, encompassing organised and unorganised formats, wide urban–rural disparities, varied levels of digital literacy, and uneven technological and infrastructural readiness. The absence of India-specific empirical evidence creates a critical knowledge gap regarding how Immersive Commerce can be effectively leveraged to enhance experiential value, strengthen product presentation, and influence consumer responses in such a complex environment. Retailers therefore lack clarity on whether Immersive Commerce can meaningfully improve shopping experiences and business outcomes or whether it remains a high-risk technological investment with uncertain relevance to diverse Indian consumers.

This research problem is further intensified by the strategic and operational dilemmas faced by Indian retailers in the context of digital transformation. Many retailers are under pressure to adopt advanced technologies to remain competitive, yet they often operate with constrained financial resources, limited technological capabilities, and inadequate digital infrastructure. Without clear, context-specific guidance, Immersive Commerce initiatives may be adopted in a trial-and-error manner, leading to disjointed Implementation, underutilisation of technology, and low returns on investment. Retailers also face uncertainty regarding consumer readiness, trust, and engagement with Immersive technologies, particularly in semi-urban and rural markets where exposure to advanced digital interfaces is still evolving. Additionally, concerns related to system reliability, operational disruptions, data security, and inclusivity raise further hesitation

toward large-scale adoption. The lack of systematic research examining both the opportunity-driven and challenge-driven dimensions of Immersive Commerce in Indian retail leaves retailers vulnerable to strategic misalignment and competitive disadvantage. Therefore, there is a pressing need for a comprehensive investigation that captures the Indian retail perspective, evaluates the influence of Immersive Commerce on customer experience and business performance, and assesses the interplay between opportunities, constraints, and risks. Addressing this research problem is essential not only to bridge the existing literature gap but also to provide actionable insights that can support informed decision-making, sustainable digital investments, and the long-term positioning of Indian retailers in an increasingly Immersive global retail landscape.

The objectives were re-capitulated as follows;

- To examine the retailers' perceived opportunities that facilitates the Successful Implementation of Immersive Commerce in the retail sector.
- To assess retailers' perception towards Customer Loyalty in Immersive Commerce.
- To investigate the impact of Immersive Commerce on retail business performance.
- To identify the future potentials of Immersive Commerce in reshaping their innovation and growth.
- To identify key operational and strategic challenges faced by retailers in implementing Immersive Commerce.

7.3 Methodological Design

The researcher adopted in the study is descriptive. Both the primary data and secondary data were collected for data integration and analysis. The secondary data were collected from various reports of Academic Journals, research papers, market research databases, company reports, retail tech summits, websites etc.,

The primary data were collected from the retailers who is in familiarization or adoption of Immersive Commerce including owners, franchise partners, managers etc., in various part of India on tier level basis. The sample respondents includes 390 respondents covering 253 respondents from Tier 1cities like Bengaluru, Mumbai, Delhi NCR, Hyderabad, Pune and Chennai and Tier 2 cities like Ahamedabad, Indore, Jaipur, Kochi/Trivandrum, Coimbatore, Bhubaneswar . The samples are collected from the various categories of retail viz., Apparels and Fashions, Electronics and Gadgets, Grocery and FMCG, Furniture and Home Décor, Beauty and Health Care etc., A Proportionate Stratified Sampling Design is used in the study to ensure that the selected respondents accurately represent the diverse characteristics of the Indian retail sector. The well structure questionnaire is used for the research for the data requirements. Before the finalization of questions, a pilot study has been conducted among respondents from Kochi and Coimbatore. Suitable modifications have been made and finalized the tools. Reliability and Validity tests have also been conducted.

The Data so collected were analysed with the help of SPSS and AMOS. The various tools like percentage, mean, rank, standard deviation, t-test,correlation analysis, regression analysis, ANOVA, Tukey's HSD test, MANOVA etc., were also employed for the analysis of the data.

7.4 Summary of Chapters

The study titled "Opportunities and Challenges of Implementing Immersive Commerce Strategy in Modern Indian Retailing" has been presented in seven chapters. The first chapter deals with the introduction and contains information about the research problem, objectives, hypotheses, significance, scope and limitations of the study. The second chapter deals with the review of literature about the current study in detail and the gap of literature is identified. A brief summary of theoretical foundations of Immersive Commerce and Indian retail industry is provided in the third chapter, with the help of secondary data reports. In fourth chapter, details of research methodology is drawn based on the research design, source of data, population of the study, sampling design, tools for data collection and analysis, variables used for the study, the pilot study conducted , the normality, reliability and validity assessment conducted are shown. The fifth chapter attempts to analyse of positive impact factors that influence the Successful Implementation of Immersive Commerce, where as the sixth chapter, with the analysis of

negative impact factors that affect the Implementation of Immersive Commerce. The seventh chapter presents major summary, findings and conclusions. And finally, the last chapter contains recommendations, implications and suggestions for further research on the topic.

7.5 Major Findings

The major findings of the study are briefly explained as below;

7.5.1 Frequency Distribution of Retailer

This section deals with the frequency distribution of categorical variables (demographic and retail characteristics) used in the study. The detailed explanation of each variables is explained below based on frequency distribution and percentage analysis. This is divided into two parts; the frequency distribution of demographic characteristics and the frequency distribution of retail characteristics.

Frequency Distribution of Demographic Characteristics

1. The sample is composed mostly of male retailers as they constitute 69.7% (252 respondents). The female retailers are 30.3 per cent (138 respondents) with no respondents expressing any other gender categories. This shows that the retail sector due to the sample is mostly dominated by men.
2. The majority of the respondents are between 18 and 40 years, which comprises 66.9% (261 retailers). The age of the retailers is 41-60 years (30.8) and 2.3 years (9) are above 60 years. This indicates that the sample population that is surveyed as retailers is largely composed of young and middle-aged people.
3. The educational profile indicates that 56.7% (221 respondents) have professional degree and 30.3% (113 respondents) of the educational profile possessed a master degree. There are 9 percent (35 respondents) degree holders, a small percentage with schooling or less (1.3), diploma qualifications (1), and Ph.D. degrees (2.8). In general, the sample is very well-educated, and most of them have advanced or professional degrees.
4. The most prominent group of respondents is the 44.9 percent (175) owners of their retail businesses. The proportion of managers is 27.9 (109 respondents) and that of franchise

partners is 19 (74 respondents). The other 8.2 percent (32 respondents) are under other labels. This means that there is a high representation at decision making positions in the retail industry.

5. The majority of the respondents possess 4-7 years of retailing experience in the range of 4-7 years (41.5 percent or 162 participants), then 38.7 percent (151 respondents) with 8-10 years of experience. The group of retailers with experience of 1-3 years experience comprises 12.8% (50 respondents), new entrants (less than one year experience) make up 2.8% and highly experienced respondents (greater than 10 years experience) make up 4.2%. This indicates that the sample is dominated with experienced middle-level retailers.

Frequency Distribution of Retail Characteristics

1. Most of the respondents work on the Omni-channel format (58.5% or 228 retailers), then there are 36.9% (144 retailers) e-Commerce/m-Commerce retailers. The traditional brick-and-mortar stores are only 4.6 percent (18 respondents). The results indicate that the majority of the sampled retailers have been adopting integrated or digital retail format.
2. The most significant category is those retailers whose yearly turnover is 1-5 crore, 33.3 percent (131 respondents). This is constituted by 510 crore turnover retailers at 23.1 (89 respondents) then the 50-lakh to 1 crore retailers at 20.5 (79 respondents). Retailers whose turnover is less than 50 lakh constitute 5.1 (21 respondents) and 17.9 (70 respondents) are above 10 crore turnover. The distribution shows that majority of the respondents are in the medium-scale business.
3. The respondents are evenly distributed among the prominent Indian cities (Tier1 and Tier 2) with the highest representation of Kochi (13.8, 54 respondents), Bengaluru (13.3, 52 respondents) and Coimbatore (11.5, 45 respondents). Delhi NCR has its share of 11% (43 respondents), unlike other places like Mumbai, Hyderabad, Chennai, Ahmedabad, Jaipur, Pune and Indore which have moderately contributed. The lowest representation is that of Bhubaneswar which is 2.8% (11 respondents). The sample is geographically varied in big retail centers.
4. The biggest segment is the apparel and fashion one with at 27% (105 respondents) and the grocery and FMCG with 25% (97 respondents). Retailers of furniture and home decor constitute 21 percent (82 respondents), and electronic and gadgets constitute 9 percent

(36 respondents). The percentage of beauty and healthcare retailers is 6% (24 respondents) as well as 12% (46 respondents) of other types of business. It means that it has large coverage in large retail segments with a good representation of fashion and grocery.

7.5.2 Descriptive Statistics of Positive Impact factors like Opportunities, Customer loyalty, Business performance and Future potentials

Descriptive Statistics of Opportunities

1. The mean scores for Experiential Enhancement range from 4.40 to 4.48, showing strong agreement that Immersive Commerce greatly enriches customer experience. With low SD values (.491–.500), the responses are highly consistent across indicators. Overall, retailers perceive Immersive tools as highly effective in enhancing engagement, satisfaction, and memorability.
2. Product Positioning shows mean values ranging from 4.30 to 4.44, indicating strong retailer agreement that Immersive Commerce improves product display and communication. The SD range (.467–.507) reflects low variability, suggesting uniform positive perceptions. Overall, the construct highlights Immersive Commerce as a valuable tool for innovative and clearer product presentation.

Descriptive Statistics of Customer Loyalty

1. Perceived value received moderate agreement, with mean scores ranging from 3.66 to 3.69 and SD values between 0.615 and 0.651. Retailers believe Immersive Commerce is useful and adds value, though perceptions remain moderate. Overall, Immersive tools are seen as beneficial but not strongly impactful.
2. Customer engagement indicators show positive responses, with means ranging from 3.66 to 3.73 and SDs between 0.622 and 0.672**.** Retailers feel AR/VR features effectively capture customer attention and involvement. Engagement is generally good, although interaction depth varies slightly.

3. Reliability scored high among respondents, with mean values from 4.04 to 4.48 and SDs between 0.491 and 0.501. Retailers strongly trust the accuracy and performance of Immersive systems. This indicates that reliability is a major strength of Immersive Commerce.

Descriptive Statistics of Business Performance

1. Sales growth indicators show strong agreement, with mean scores ranging from 4.28 to 4.77 and SD values between 0.493 and 0.661. Retailers believe Immersive Commerce significantly boosts purchases, especially through enhanced product visualization and upselling. Overall, Immersive features are perceived to directly support higher sales conversions.
2. Customer retention received moderate agreement, with mean scores ranging from 3.66 to 3.71 and SD values between 0.598 and 0.633. Respondents feel Immersive features encourage repeat visits and help build long-term customer relationships. Retention improves mainly through personalized and engaging Immersive experiences.
3. Trend adaptation shows moderate positive perceptions, with mean values ranging from 3.68 to 3.74 and SD values between 0.635 and 0.668. Retailers believe Immersive Commerce helps them stay competitive and innovative. Adoption is influenced both by internal innovation goals and competitor pressure.

Descriptive Statistics of Future Potentials

1. The results indicate that retailers show a high level of Innovation Capability, with mean scores ranging from 4.35 to 4.47 and standard deviations between 0.49 and 0.537, reflecting strong agreement on continuous experimentation with Immersive technologies. Respondents consistently acknowledged the importance of innovation in their Immersive Commerce strategy, supported by active exploration of new digital solutions. Overall, the low SD values show that perceptions are highly uniform across the sample.
2. The findings reveal that retailers perceive strong Growth Potential in Immersive Commerce, with mean values ranging from 4.31 to 4.38 and SDs between 0.472 and 0.485, indicating high consensus regarding its future advantages. Respondents believe

Immersive Commerce can drive long-term growth, open new revenue channels, and support market expansion. The consistently high mean scores suggest that retailers have a positive outlook toward the future scalability and promise of Immersive Commerce.

7.5.3 Descriptive Statistics of Negative Impact Factors like Challenges, risks and barriers

Descriptive Statistics of Challenges

1. Financial Constraints show moderate agreement among retailers, with mean scores ranging from 3.66 to 3.69 and SDs between 0.615 and 0.651. The results indicate that high investment costs, unclear ROI, and financial risks are notable barriers to Immersive Commerce adoption. Overall, financial limitations remain a challenge restricting expansion and Implementation.
2. Tech-related Constraints also present moderate concern, with mean values from 3.66 to 3.73 and SDs between 0.623 and 0.672. Retailers highlight issues such as limited access to advanced tools, technical disruptions, low internal expertise, and reliance on external partners. These findings suggest that technological readiness significantly affects the quality and consistency of Immersive Commerce Implementation.
3. Infrastructure Blockage shows moderate challenge levels, with mean scores from 3.61 to 3.63 and SD values between 0.591 and 0.621. Respondents agree that existing store layouts, physical space constraints, and inadequate digital infrastructure hinder Immersive technology integration. The results indicate that substantial infrastructural upgrades are needed for smooth adoption.
4. Consumer Readiness Issues have very high agreement, with mean values from 4.61 to 4.77 and SDs ranging between 0.447 and 0.509. Customers' unfamiliarity with Immersive tools, hesitation, and lack of awareness especially among elderly shoppersemerge as the strongest barriers. These findings show that consumer-side limitations are the most significant challenge affecting Immersive Commerce usage.

Descriptive Statistics of Risks and Barriers

1. Financial Risks show moderate concern among retailers, with mean scores ranging from 3.66 to 3.71 and SD values between 0.598 and 0.633. Respondents feel uncertain about ROI and worry about potential revenue loss due to poor technological performance. Overall, financial risk remains a notable deterrent to Immersive Commerce investments.
2. Operational Risks also show moderate agreement, with mean values ranging from 3.69 to 3.74 and SDs between 0.635 and 0.668. Retailers express concerns about system failures, risky integration, constant maintenance needs, and lack of SOPs for tech breakdowns. These results indicate that operational instability poses a significant barrier to smooth Implementation.
3. Security and Privacy Risks show strong agreement, with high mean scores from 4.35 to 4.47 and SD values between 0.490 and 0.537. Retailers are highly concerned about data security, cyber threats, and the absence of uniform cybersecurity standards in Immersive systems. The findings reveal that privacy and protection issues are among the most critical risks affecting adoption.
4. Consumer Inclusivity challenges also show high agreement, with mean values ranging from 4.31 to 4.37 and SDs between 0.472 and 0.495. Retailers recognize accessibility issues for certain groups, including people with disabilities, and cultural or language-related barriers. Overall, inclusivity remains a major concern in ensuring equal access to Immersive Commerce.
5. Consumer Barriers reflect moderate challenge levels, with mean scores ranging from 3.68 to 3.70 and SD values between 0.583 and 0.613. Retailers note that limited interest, low digital skills, resistance to change, and skepticism reduce customer engagement with Immersive tools. These results suggest that consumer attitudes and digital readiness affect the pace of adoption.

7.5.4 Relationship between Experiential Enhancement and Product Positioning

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The correlation analysis of the opportunities dimension shows that there is a moderate positive relationship between Experiential Enhancement and Product Positioning ($r = 0.418$, $p = 0.001$). This implies that when there are improvements in experiences augmentation, product positioning is also enhanced. The statistically significant p-value supports the fact that this association

cannot be explained by the chance. The results on the whole show some distinct associative picture concerning the two opportunity-dependent variables in the research.

The experiential enhancement (**β = 0.347, p < .001**) and product positioning (**β = 0.306, p < .001**) both have a positive and significant influence on the successful implementation of immersive commerce in Indian retail. Experiential enhancement emerged as the stronger driver, highlighting the importance of immersive and engaging customer experiences in supporting effective implementation.

7.5.5 Multiple Regressions between the constructs of Customer Loyalty

The regression output shows that the predictor that is statistically significant is the Perceived Value whose unstandardized coefficient is of the value of B = 0.333, standardized beta = 0.441 and a p-value that is extremely significant (p = less than 0.001), hence showing a strong positive influence on the outcome variable. Customer Engagement also became one of the key predictors, having a greater standardized beta of 0.659 and a significant p-value of well below the significance level (p <.001) than the other covariates, implying that it has the strongest impact among the covariates. On the same note, the Reliability showed a significant impact, whereby, B = 0.333, 0.620 standardized beta, and significant p-value (p <.001) validated its high predictability ability. Taken together, the three variables Perceived Value, Customer Engagement and Reliability have a significant level of statistical significance and positive impacts on the dependent variable and thus, each of the predictors has a significant impact on the dependent variable in the model.

7.5.6 Multivariate analysis of Business performance

The multivariate analysis displaying the Successful Implementation of Immersive Commerce (SIIC) as the predictor, showed a statistically significant multivariate effect of the predictor on the aggregate variables of business performance Sales Growth, Customer Retention, and Trend Adaptation in each of the four canonical multivariate tests: Pillai Trace, Wilks Lambda, Hotelling Trace, and Roy Root, with p <. 001.

Besides, the univariate tests revealed that SIIC had a significant effect on all the individual business performance constructs, where Sales Growth (F = 6.464, p < .001), Customer Retention

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(F = 2.706, p < .001), and Trend Adaptation (F = 3.576, p < .001) all were statistically significant.

A significant level of Sales Growth variance was explained by the model (R 2 =.397), Trend Adaptation (R 2 =.267), and Customer Retention (R 2 =.216) as was found to have varied levels of predictive value.

7.5.7 Effect of Growth Potentials on Retail format, Annual Turnover, Location and Category of Retail

Retail format on Innovation Capability

The ANOVA test examining the effect of retail format on Innovation Capability showed no statistically significant difference among the groups (F = 0.017, df = 2,387, p = 0.983). The between-group variance was extremely low (Sum of Squares = 0.007, Mean Square = 0.003) compared with the within-group variance (Sum of Squares = 79.137, Mean Square = 0.204). This indicates that innovation capability scores were highly similar across all retail formats.

Annual Turnover on Innovation Capability

The ANOVA table of Annual Turnover on Innovation Capability reveals that the between-group Sum of Squares is 0.617, 4 degrees of freedom and its Mean Square is 0.154. The within-group Sum of Squares is 78.527 with 385 degrees of freedom giving an output of Mean Square of 0.204. The overall variation obtained is 79.144 in 389 cases. The analysis produced an F-value of 0.757 where the significance value was 0.554.

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Location on Innovation Capability

The ANOVA analysis of the relationship between Location and Innovation Capability resulted in the between-group Sum of Squares (SS) of 4.003 with 11 degrees of freedom (df) with a resultant Mean Square (MS) of 0.364. Within-group SS= 75.142/378 df=0.199 within-group MS. In the 389 observations, the cumulative SS in the dataset was 79.144. Therefore, the F-statistic was equal to 1.830, and the p-value was also statistically significant (at the 0.047 level).

The multiple comparison outcomes show that there is no statistically significant difference between any two locations concerning Innovation Capability since all the p-values are more than

.05. Although some of the differences of means are slightly greater in case of pairwise comparison (e.g., Delhi NCR vs. Pune), these differences of means are not substantive. In turn, the concept of Innovation Capability is generally homogeneous in the context of the reviewed urban environments, which indicates that the geographical location is not a major factor that can affect the levels of innovation of the retailers operating in the sphere of Immersive Commerce.

Category of Retail on Innovation Capability

The ANOVA results of the effect of Category of Retail on Innovation Capability show that the between-group variance is very small (F = 0.519, p = 0.762), indicating no significant differences across retail categories. The mean square values reveal that most of the variation in innovation capability occurs within groups rather than between them. Since the p-value is far greater than 0.05, retail category does not appear to influence how retailers perceive or adopt innovation capability in Immersive Commerce. Overall, innovation capability is similar across different types of retail formats.

Retail Format on Growth Potentials

The ANOVA results indicates that retail format do not significantly influence Growth Potentials, as shown by an extremely low F-value (F = 0.010) and a non-significant p-value (p = .990). The between-group variance (.004) is negligible compared to the within-group variance (81.384), suggesting that Growth Potentials show similar across retail formats. Overall, the findings confirm that retail format has no meaningful effect on retailers' perceived Growth Potential in Immersive Commerce.

Annual Turnover on Growth Potentials

The ANOVA results indicate that annual turnover does not have a significant effect on Growth Potentials, as shown by the low F-value (F = 0.531) and the non-significant p-value (p = .713). The between-group variation (.447) is very small compared to the within-group variation (80.941), suggesting differences across turnover categories. This means retailers, regardless of their turnover size, perceive Growth Potentials almost similarly. Overall, annual turnover is not a determining factor influencing Growth Potential in the context of Immersive Commerce.

Location on Growth Potentials

The ANOVA results indicate a significant difference in Growth Potentials across different locations, as indicated by the F-value of 2.125 and p-value (p = .018). The between-group variance (4.740) is higher, suggesting meaningful dissimilarity across cities or regions. This implies that retailers' perception of Growth Potential differ depending on their location. In fact, the location emerges as an important factor influencing retailers view on Growth Potential of Immersive Commerce.

The multiple comparison results reveal that none of the pairwise differences between locations are statistically significant, as all p-values are above 0.05. Some locations display small mean score variation in Innovation Capability, the confidence intervals for all pairs include zero, indicating no meaningful differences across cities. This suggests that retailers across different locations perceive similar Innovation Capability. Overall, location does not have significant differences in Innovation Capability of the firm.

Category of Retail on Growth Potentials

The ANOVA results indicate that the category of retail does not significantly influence Growth Potentials**,** as shown by the low F-value (F = 0.531) and the non-significant p-value (p = .713). The between-group variance (0.447) is minimal compared to the within-group variance (80.941), suggesting very small difference across retail categories. This indicates that retailers as well as the firm perceive Growth Potentials almost uniformly. Overall, retail category is not a determining factor in shaping Growth Potential in the context of Immersive Commerce**.**

7.5.8 Causal Effect of Positive Impact factors on Successful Implementation of Immersive Commerce

1. The findings show that Experiential Enhancement has a significant effect on Successful Implementation of Immersive Commerce. The standardized estimate for this path is β = 0.287. The critical ratio recorded is 8.267. The p-value is less than 0.001, confirming statistical significance.

2. The results indicate that Product Positioning significantly predicts Successful Implementation of Immersive Commerce. The standardized estimate is β = –0.14. The critical ratio is –4.191. The p-value is less than 0.001, confirming that the effect is statistically significant.
3. Perceived Value shows a statistically significant effect on Successful Implementation of Immersive Commerce. The standardized coefficient for this relationship is β = 0.198. The critical ratio value is 3.017. The p-value of 0.003 indicates that the effect is significant.
4. Sales Growth has a significant influence on Successful Implementation of Immersive Commerce. The standardized estimate obtained is β = 0.461. The critical ratio value for this path is 10.64. The p-value is below 0.001, confirming significance.
5. Innovation Capability significantly affects Successful Implementation of Immersive Commerce. The standardized estimate is β = 0.701. The critical ratio recorded is 10.51. The p-value is less than 0.001, confirming statistical significance.
6. Innovation Capability does not significantly affect Reliability. The standardized estimate is β = –0.019. The critical ratio is –0.379. The p-value of 0.705 indicates no statistical significance.
7. Perceived Value demonstrates a significant effect on Experiential Enhancement. The standardized coefficient is β = –0.111. The critical ratio obtained is –3.001. The p-value is 0.003, confirming significance.
8. Experiential Enhancement does not significantly influence Product Positioning. The standardized estimate is β = –0.209. The critical ratio is –1.44. The p-value of 0.15 indicates the absence of significance.
9. Innovation Capability shows a significant effect on Perceived Value. The standardized estimate reported is β = 0.729. The critical ratio is 11.55. The p-value is less than 0.001, confirming statistical significance.
10. Growth Potentials significantly affect Sales Growth. The standardized estimate for this path is β = –0.142. The critical ratio recorded is –3.451. The p-value is less than 0.001, confirming significance.
11. Product Positioning significantly influences Sales Growth. The standardized estimate for this relationship is β = 0.736. The critical ratio recorded is 11.98. The p-value is less than 0.001, confirming statistical significance.

12. Growth Potentials have a significant effect on Innovation Capability. The standardized estimate is β = 0.868. The critical ratio obtained is 21.14. The p-value is less than 0.001, confirming statistical significance.
13. Sales Growth significantly predicts Experiential Enhancement. The standardized coefficient is β = 0.753. The critical ratio is 12.38. The p-value is less than 0.001, establishing significance.
14. Perceived Value significantly influences Growth Potentials. The standardized estimate reported is β = 0.539. The critical ratio is 4.511. The p-value is less than 0.001, confirming significance.
15. Sales Growth significantly affects Growth Potentials. The standardized estimate for this path is β = –0.105. The critical ratio recorded is –5.054. The p-value is below 0.001, confirming statistical significance.
16. Innovation Capability has a marginal effect on Growth Potentials. The standardized estimate is β = 0.272. The critical ratio reported is 1.942. The p-value of 0.052 indicates orderline significance.

7.5.9 Findings Based on Negative Impact Factors that affects the Successful implmenetation of Immersive Commerce.

Gender Wise Analysis on Challenges

1. The Independent Sample t-test shows a significant gender difference in Financial Constraints (t = 2.246, p = 0.025). Male retailers reported higher mean financial constraints (M = 2.3681) compared to female retailers (M = 2.2391). This reveals that men perceive financial barriers to Immersive Commerce adoption more strongly than women. The results confirm that gender plays a meaningful role in shaping perceptions of financial burden associated with implementing Immersive technologies.
2. The t-test results show no significant difference between male and female retailers in Tech-Related Constraints (t = –0.346, p = 0.729). The mean values of both groups (Male = 2.3006, Female = 2.3207) are very close, indicating similar levels of perceived technological challenges. This suggests that technology-related issues are experienced

uniformly across genders. Overall, gender does not influence the perception of technical barriers in Immersive Commerce adoption.

3. The findings indicate no significant gender difference in Infrastructure Blockage (t = 0.442, p = 0.659). Both male and female retailers report almost identical mean scores (Male = 2.3919, Female = 2.3678), showing consistent perceptions across groups. This suggests that infrastructural limitations such as network quality, device support, and hardware setup issues affect both genders equally. The results imply that infrastructure-related barriers are universal and not gender-dependent.
4. The t-test shows no significant difference between genders regarding Consumer Readiness Issues (t = 1.690, p = 0.092). Although the mean score is slightly higher for males (1.3681) than females (1.2880), the difference is not statistically meaningful. This indicates that both groups perceive consumer preparedness for Immersive Commerce at similar levels. Overall, the findings show that gender does not influence concerns regarding customer awareness, willingness, or comfort with Immersive technologies.

Age-wise Findings on Challenges

1. The age-based review of Financial Constraints shows that the age groups have no statistically significant difference between them (F = 0.073, p = 0.929). Retailers aged between 18 and 60 (Mean = 2.3228, 2.3167 and 2.3889 respectively) have a similar mean score of their perceived financial challenges though there is always a similarity of the mean score perception. The F-value is low hence showing minimal variation among groups of ages. Therefore, the financial limitations are viewed equally amongst the various age groups.
2. Tech-Related Constraints, on the other hand, indicate that there is a statistically significant difference by age (F = 3.176, p = 0.043). The mean score is highest among the retailers in the 18-40 age group (Mean = 2.3352), then it is followed by the 41-60 age group (Mean = 2.2792), and then by the 60+ age group (Mean = 1.8889). This implies that the challenges involved in the use of technology are perceived to be more among the younger retailers than the older retailers. The high F-value indicates that age is a big determinant with respect to perceptions of technological constraints.

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3. In the case of Infrastructure Blockage, the findings do not show any significant difference across the age groups (F = 1.778, p = 0.170). Though there is a slight increase in the mean score with age 18-40(Mean= 2.3544), 41-60(Mean= 2.4292), and 60 and above(Mean= 2.6111) the differences are not statistically significant. The standard deviations are also an indication of moderate variability in groups. In general, the problems of infrastructures are equally felt within the age brackets.
4. Customer Readiness Issue Analysis shows that there is statistically significant difference according to the age group (F = 5.261, p = 0.006). The youngest age group (18 40) has the highest mean score (Mean = 1.3889), 41 60 group has the second highest mean score (Mean = 1.2500) and the last group (60 60) has the least mean score (Mean = 1.1111). This trend indicates that the older a person is, the lower the level of perceived customer readiness problem. The high p-value supports the idea that age is a factor that can be of the essence when it comes to the formulation of opinions regarding the issue of customer readiness.

Educational Qualification wise analysis on Challenges

1. As shown, the results of the ANOVA show that the levels of financial constraints do not significantly vary between the categories of educational qualifications (F = 0.947, p = 0.451). Even though some differences in the mean scores can be seen, with the lowest scale of 2.00 with Plus Two/Diploma holders and the highest of 2.38 with the holders of Master degrees, the differences are not significant. Respondents of all levels of education experience a similar and moderate perception of financial barriers to Immersive Commerce Implementation. This implies that the level of education is not a decisive factor in determining the perceptions of financial barriers.
2. As it is analyzed, educational qualification does not play a significant role in the technological-related limitations (F = 1.625, p = 0.152). The mean scores are different in each group and Plus Two/ Diploma holders have the highest mean score (2.81) and professionally qualified respondents have relatively lower mean scores (2.26). These differences are however statistically insignificant. The results suggest that there are no differences in the perception of technological issues among various educational

backgrounds, which means that these barriers are more of a structural than an education-related nature.

3. The ANOVA findings indicate that there is no significant differences between the infrastructure blockage among the educational qualification groups ($F = 0.898$, $p = 0.482$). There is close clustering around the mean values with Plus Two/ Diploma holders having the lowest mean value of 2.06 and PhD holders having the highest mean value of 2.43 which indicates consistency in the perception of infrastructural problems. This consistency implies that the problems that are encountered in infrastructure affect retailers regardless of their education degrees. Therefore, the level of education does not have a substantial influence on the perceptions of the infrastructural obstacles to Immersive Commerce.
4. Conversely, there is statistically significant difference in customer readiness issues among the categories of education qualifications($F = 6.604$, $p < 0.001$). This is because degree holders are the highest in the mean score (1.74) implying that they are relatively more concerned with customer readiness, although Master and professional qualified respondents have lower mean scores (approximately 1.30). This difference shows that education level is a factor that determines customer readiness of Immersive Commerce adoption by retailers. The result implies that higher or professional education might be linked to a better evaluation of the readiness of the customers.

Year of Experience wise analysis on Challenges

1. Results show that there are small differences in how financial constraints are perceived in various categories of years of experience. Retailers who have less than one year, 1-3 years, 4-7 years, 8-10 years and more than 10 years experience record similar amounts of financial difficulties in the Implementation of the Immersive Commerce. There are few mean difference between the experience groups which indicates a coherent perception of cost-related problems. All in all, financial limitations seem to be a more prevalent issue regardless of the level of experience of the retailer.
2. The results indicate that there is a significant difference in technological related limitations among types of experience. The less experienced retailers report to have comparatively high technological challenges than the more experienced retailers. More

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seasoned retailers have a higher level of adaptability and are more familiar with the phenomenon of Immersive technologies, leading to a relatively reduced perceived constraints. It shows that the technological issues are more intensive in the initial years of exposure to Immersive Commerce.

3. The findings show that blockage associated with infrastructure is seen throughout all of the experience groups. The extent to which retailers have less than a year experience or more than ten years experience does not show differences in the infrastructural limitations reported by retailers. With minimal difference between categories, it is possible to guess that infrastructure problems are structural as opposed to experience-based. Therefore, infrastructure congestion is a common limitation in the retail industry.
4. The results demonstrate distinct variations in the perception of the customer readiness depending on the years of experience. Retailers that are more experienced report less customer readiness issues than retailers who have fewer years of experience in retailing. The less seasoned retailers feel more doubt about the customer acceptance and participation with Immersive Commerce. This trend indicates that experience of a long period in the market and interaction with the customers enhances the confidence of the retailers in customer readiness.

Position/Designation wise analysis on Challenges

1. The outcomes of ANOVA show that there is no significant difference in financial constraints by position and designation categories ($F = 0.723$, $p = 0.539$). The scores of Franchise Partners ($M = 2.277$), Managers ($M = 2.385$), Owners ($M = 2.307$), and Others ($M = 2.297$) are close to the mean scores. This indicates a fairly consistent understanding of financial limitations in respondents regardless of position held. The fact that the variation is low indicates that the financial challenges are usually shared among all the positions.
2. The results indicate that there is no significant change in any of the tech-related constraints according to position or designation ($F = 0.363$, $p = 0.780$). There is no significant difference in the mean values of the Managers ($M = 2.333$), Owners ($M = 2.311$), Franchise Partners ($M = 2.301$), and Others ($M = 2.219$). This is a sign of a steady

rate of technological constraints seen in various positions. The findings point out that, issues relating to technology are not location-specific.

3. The analysis of ANOVA indicates that there is no significant difference in infrastructure blockage according to the categories of designation (F = 1.141, p = 0.332). Mean scores are very close with the Owners with 2.336 and Managers with 2.445, and Franchise Partners (M = 2.382) and others (M = 2.438) have the same levels. This indicates a general outlook on infrastructural problems of the positions. In general, the issue of infrastructure blockage is considered a common issue regardless of position.
4. The outcomes show that there is a considerable difference in the issues related to customer readiness using position or designation groups (F = 2.762, p = 0.042). The highest mean score (M = 1.523) is recorded among respondents in the Others category, Managers (M = 1.349), and Owners (M = 1.337) with Franchise Partners having the lowest mean (M = 1.253). This indicates role variation in perceived customer readiness. The results propose that position has an impact on the experience of customer readiness issues.

Retail Format wise analysis on Challenges

1. The analysis reveals that financial constraints are not significant in terms of retail format differences. Similar financial constraints are reported by brick-and-mortar retailers (Mean = 2.36, SD = 0.49), the e-Commerce/m-Commerce retailers (Mean = 2.30, SD = 0.57), and the Omni-channel retailers (Mean = 2.33, SD = 0.53). The ANOVA finding (F = 0.208, p = 0.812) proves the lack of statistically significant difference between the formats.
2. Results indicate that there is no significant difference in tech associated constrainment in various retail formats. The mean score of brick-and-mortar outlets is 2.36 (SD = 0.67) and the same is shown by the e-Commerce/m-Commerce outlets (Mean = 2.31, SD = 0.56) and the Omni-channel retailers (Mean = 2.30, SD = 0.53). The difference is not significant since the F-value is 0.102 and the p-value is 0.903.
3. There is an equivalent level of infrastructure blockage experienced in all retail formats. The mean of brick-and-mortar retailers (Mean = 2.57, SD = 0.47) is slightly higher than in the e-Commerce/m-Commerce (Mean = 2.37, SD = 0.56) and Omni-channel formats

(Mean = 2.38, SD = 0.49). The ANOVA value (F = 1.254, p = 0.286) however is not statistically significant indicating that these differences are not significantly different.

4. The problem of customer readiness is not much different in the retail formats. The main retailers indicate 1.25 (SD = 0.36) as the mean, whereas e-Commerce/ m-Commerce (Mean = 1.35, SD = 0.48) and Omni-channel retailers (Mean = 1.34, SD = 0.43) indicate slightly higher but similar values. F-value of 0.378 and p-value 0.685 prove that the formats do not significantly differ.

Annual Turnover wise analysis on Challenges

1. The analysis reveals that there is no significant difference in the financial constraint by the categories of the annual turnover as indicated by the F-value of 0.624 and p-value of 0.646. Mean scores in turnover groups are nearly close and the range is between 2.19 and 2.36 with similar values of standard deviations. The financial constraints among retailers in all the levels of turnover are of a similar magnitude. Therefore, the turnover every year does not seem to have any effect on the perceived financial limitations regarding the Implementation of Immersive Commerce.
2. The ANOVA findings show that the difference between the tech-related constraints in the various turnover categories per year (Annual turnover) was not significant (F = 0.152, p = 0.962). Mean values are very consistent in all groups and the mean is quite close that ranges close to 2.27 to 2.33. This shows that technology issues are seen as similar regardless of the magnitude of the annual turnover. Thus, the level of turnover does not have a strong impact on tech-related constraints.
3. The result has shown that there is no significant difference in infrastructure blockage between high and low annual turnover with F-value of 1.707 and p-value of 0.148. Even though there are minimal differences in the mean scores between the categories (2.26 to 2.50), they are not significant. There are also infrastructure-related challenges faced by retailers of varying magnitudes of turnover. Therefore, the issue of annual turnover does not contribute to blockage of infrastructure significantly.
4. The findings reveal that there is no significant difference between the issues of customer readiness among the annual turnover groups (F = 0.662, p = 0.619). Standard deviations are always low with little differences between mean scores of 1.29 to 1.39. This is an

indication that regardless of the size of turnover, customer readiness issues are viewed in a similar manner among the retailers. As a consequence, the turnover annually does not have a huge impact on the problem of readiness to customers.

Location wise analysis on Challenges

1. Results of the ANOVA show that the financial constraints are not statistically different based on the locations (F = 0.616, p = 0.816). The mean scores are comparatively similar in the cities that vary between 2.229 (Mumbai) and 2.528 (Indore). The majority of the locations have means that are close to the mid-2 range, and the dispersion is very low. The results establish that there is no statistically significant difference in location-based variation in financial constraints.
2. The results of the analysis indicate that there is no significant difference in the tech related constraints between locations (F = 1.317, p = 0.212). The mean scores have slight variation of between 2.080 (Pune) to 2.528 (Indore). A number of metropolitan areas are above 2.35 in their means such as Mumbai, Chennai and Ahmedabad. Generally, these findings suggest consistency in the tech-related constraints, regardless of the location.
3. The location has no significant differences in infrastructure blockage (F = 0.834, p = 0.606). The mean values vary between 2.148 (Ahmedabad) and 2.500 (Chennai). The majority of the cities are clustering at an average of between 2.35 and 2.45. The results indicate no significant differences in terms of location, where infrastructure is blocked, which are statistically significant.
4. It can be concluded that ANOVA results do not provide any significant location-related difference in the issues of customer readiness (F = 1.074, p = 0.381). There are mean scores of 1.136 (Bhubaneswar) to 1.500 (Mumbai). Mean values are also consistently near the lower part of the scale across locations. These results imply that customer preparation issues are the same in various locations.

Category of Retail wise analysis on Challenges

1. The result of the ANOVA shows that Financial Constraints is different across types of retail significantly (F = 2.29, p = 0.05). The highest mean score (M = 2.521, SD = 0.403)

was observed in the category of Beauty and Health Care retailers, which means that this group has a comparatively limited financial base. The lowest mean (M = 2.174, SD = 0.636) was observed among Furniture & Home Décor retailers which implies that the financial pressure is relatively less. Other groups like Electronics & Gadgets, Grocery and FMCG, Apparels and Fashion and Others were moderate with close clustered mean.

2. The results indicate that there is no significant difference among retail categories in the Tech-Related Constraints (F = 0.58, p = 0.72). The average of the categories is between the range of **2.25 to 2.396 which is a close range showing that there is a relatively homogeneous perception towards technological constraints. Beauty & Health Care and Electronics and Gadgets categories had slightly higher means but the lowest were recorded at Apparels and Fashion. In general, the difference in tech-related constraints among retail categories is not high.
3. According to the findings of the ANOVA, there is no significant difference in the Infrastructure Blockage when using the categories of retail (F = 1.41, p = 0.22). The mean scores are between 2.292 and 2.533 with the highest mean in the category of Other and lowest in the category of Beauty and Health Care. The value of the means is closely corresponding within most of the categories suggesting that the challenges are not different based on infrastructure. The standard deviations indicate a moderate variation in categories.
4. The results of the analysis show that Customer Readiness Issues have no significant differences across categories of retailers (F = 1.03, p = 0.40). The mean scores are between 1.255 and 1.49, which is a fairly similar perception of customer readiness, which is consistent across the categories. The biggest mean value was recorded by Beauty & Health Care retailers whereas the lowest mean value was recorded by the Others category. In general, the issues of customer readiness seem to be evenly spread among the segments of retailing.

Gender wise analysis on Risks and Barriers

1. The mean score for male respondents (M = 2.33, SD = 0.55) is slightly higher than that of female respondents (M = 2.27, SD = 0.50). However, the t-test result (t = 1.065, p = 0.287) indicates that this difference is not statistically significant. Hence, perceptions of financial risks related to Immersive Commerce do not vary meaningfully by gender.
2. Male retailers reported a marginally higher mean score (M = 2.30, SD = 0.58) compared to female retailers (M = 2.26, SD = 0.55). The observed difference is not statistically significant (t = 0.661, p = 0.509). This suggests that operational risk perceptions are similar across genders.
3. Male respondents show a higher mean score (M = 1.67, SD = 0.42) than female respondents (M = 1.46, SD = 0.47). The t-test result is statistically significant (t = 4.452, p < 0.001), indicating a meaningful gender difference. Thus, male retailers perceive security and privacy risks in Immersive Commerce more strongly than female retailers
4. Female respondents reported a higher mean score (M = 1.72, SD = 0.39) compared to male respondents (M = 1.62, SD = 0.42). The difference is statistically significant (t = –2.266, p = 0.024). This finding indicates that female retailers perceive consumer inclusivity challenges more strongly than male retailers.
5. The mean score for male respondents (M = 2.32, SD = 0.52) is slightly higher than that of female respondents (M = 2.28, SD = 0.48). The difference is not statistically significant (t = 0.726, p = 0.468). Therefore, gender does not significantly influence perceptions of consumer-related barriers in Immersive Commerce.

Age wise analysis on Risks and Barriers

The ANOVA results show that financial risks do not vary significantly across different age groups (F = 2.073, p = 0.127). Retailers aged 18–40 and 41–60 report similar mean scores, indicating comparable perceptions of financial risk. Although respondents aged 60 years and above record a higher mean value, the small sample size and non-significant p-value suggest that age does not meaningfully influence financial risk perception. Overall, financial risk concerns remain largely uniform across age categories.

1. A significant age-wise difference is observed in operational risks (F = 3.197, p = 0.042). Retailers in the 41–60 and 60+ age groups report higher mean scores compared to those aged 18–40. This indicates that older respondents perceive greater operational difficulties related to Immersive Commerce Implementation. Younger retailers appear relatively less concerned about operational disruptions.
2. The findings reveal a statistically significant difference in security and privacy risks across age groups (F = 5.898, p = 0.003). The highest mean score is reported by respondents aged 60 and above, followed by the 18–40 age group, while the 41–60 group reports the lowest mean. This pattern suggests heightened sensitivity toward data security and privacy issues among older retailers. Age therefore plays an important role in shaping perceptions of security-related risks.
3. Consumer inclusivity shows a significant variation across age categories (F = 3.050, p = 0.048). Retailers aged 41–60 and 60+ report higher mean values compared to the 18–40 group. This indicates that older respondents perceive inclusivity challenges more strongly in Immersive Commerce environments. Younger retailers tend to view consumer inclusivity issues as relatively less prominent.
4. The ANOVA results indicate no significant age-based difference in consumer barriers (F = 0.711, p = 0.492). Mean scores across all age groups remain closely aligned, reflecting consistent perceptions of consumer-related barriers. Even though respondents aged 60 and above show a slightly higher mean, the difference is not statistically meaningful. Thus, age does not significantly influence views on consumer barriers in Immersive Commerce.

Educational Qualification analysis on Risks and Barriers

1. The ANOVA results show that financial risks do not differ significantly across educational qualification categories (F = 1.131, p = 0.343). Although respondents with Plus Two/Diploma (Mean = 2.75) and School/Matriculation (Mean = 2.65) reported relatively higher mean scores, the variation across groups is not statistically meaningful. Degree, Master's, Professional, and PhD holders reported fairly similar and comparatively lower mean values. Hence, educational qualification does not significantly influence perceptions of financial risk

2. The analysis indicates no significant difference in operational risk perceptions across educational qualification levels (F = 1.284, p = 0.270). PhD holders (Mean = 2.43) and professionals (Mean = 2.31) showed slightly higher mean scores compared to degree holders (Mean = 2.09). However, these differences are not strong enough to reach statistical significance. Overall, operational risk perceptions remain consistent irrespective of educational background.
3. A significant difference is observed in security and privacy risk perceptions across educational qualification categories (F = 2.502, p = 0.030). School/Matriculation respondents reported the highest mean score (Mean = 1.95), while PhD holders reported the lowest (Mean = 1.43). The mean scores show a general decline with increasing educational level. This indicates that perceptions of security and privacy risks vary significantly with educational qualification.
4. The findings reveal a statistically significant difference in consumer inclusivity perceptions across educational levels (F = 3.856, p = 0.002). Degree holders (Mean = 1.83) and Master's degree respondents (Mean = 1.71) reported higher mean scores compared to School/Matriculation respondents (Mean = 1.20). The variation suggests that educational qualification has a significant influence on views related to consumer inclusivity. Thus, inclusivity perceptions differ meaningfully among education groups.
5. The ANOVA results show no significant difference in consumer barrier perceptions across educational qualification categories (F = 0.225, p = 0.952). Mean values are closely clustered across all groups, ranging from 2.29 to 2.36. This indicates a high level of consistency in perceived consumer barriers irrespective of respondents' educational background. Therefore, educational qualification does not significantly affect perceptions of consumer barriers

Year of Experience analysis on Risks and Barriers

1. The ANOVA results indicate that perceptions of financial risks do not significantly differ across year-of-experience categories (F = 1.056, p = 0.378). Mean scores remain relatively close across all groups, ranging from 2.136 to 2.358. Retailers with 4–7 years of experience reported the highest mean perception of financial risks, while those with

less than one year reported the lowest. Overall, experience level does not appear to influence financial risk perception in a statistically significant manner.

2. Findings show no significant difference in operational risk perceptions based on years of experience ($F = 1.594$, $p = 0.175$). Mean values vary moderately, with the highest mean observed among retailers with more than 10 years of experience ($M = 2.50$) and the lowest among those with less than one year ($M = 2.023$). Despite these variations, the differences are not statistically meaningful. This suggests a broadly similar view of operational risks across experience levels.
3. A significant difference is observed in security and privacy risk perceptions across experience categories ($F = 8.423$, $p < 0.001$). Retailers with 8–10 years of experience reported the highest mean score ($M = 1.719$), indicating stronger concern, whereas those with 1–3 years reported the lowest ($M = 1.34$). The variation in means reflects that experience level plays a significant role in shaping awareness and concern regarding security and privacy risks. Hence, perceptions of these risks increase and vary meaningfully with experience.
4. The ANOVA results reveal a significant difference in consumer inclusivity perceptions across experience groups ($F = 2.993$, $p = 0.019$). Retailers with 1–3 years of experience reported the highest mean score ($M = 1.81$), while those with 8–10 years reported the lowest ($M = 1.596$). Although differences are modest, they are statistically significant, indicating that experience level influences views on inclusivity-related challenges. This suggests differing sensitivity to inclusivity issues across experience stages.
5. Perceptions of consumer barriers do not significantly vary with years of experience ($F = 0.391$, $p = 0.815$). Mean scores are closely clustered, ranging from 2.203 to 2.333 across all experience groups. Retailers with 8–10 years of experience reported a slightly higher mean, but the variation is minimal. Overall, experience level does not significantly affect perceptions of consumer-related barriers.

Position / Designation analysis on Risks and Barriers

1. The ANOVA results show that perceptions of financial risks do not significantly differ across position or designation categories ($F = 0.744$, $p = 0.527$). Mean scores range from 2.259 among managers to 2.378 among franchise partners, indicating only minor

variation. Owners and respondents in other positions reported mean values close to the overall average (M = 2.307). Overall, designation does not have a significant influence on financial risk perception.

2. Findings indicate no significant difference in operational risk perceptions based on position/designation (F = 0.338, p = 0.798). The mean scores are closely clustered, with owners reporting a mean of 2.303 and those in other positions reporting a slightly higher mean of 2.359. Managers and franchise partners also reported comparable levels of operational risk. This suggests a uniform perception of operational risks across different designations.
3. A significant difference is observed in security and privacy risk perceptions across designation categories (F = 2.956, p = 0.032). Owners reported the highest mean score (M = 1.64), followed closely by managers (M = 1.619), indicating relatively higher concern in these groups. Franchise partners reported the lowest mean (M = 1.460), while respondents in other positions showed moderate concern. These results indicate that position/designation significantly influences perceptions of security and privacy risks.
4. The analysis reveals no significant difference in consumer inclusivity perceptions across positions or designations (F = 0.656, p = 0.579). Mean values range from 1.628 among managers to 1.742 among respondents in other positions, reflecting only marginal variation. Franchise partners and owners reported similar mean scores close to the overall average (M = 1.654). Hence, designation does not significantly affect views on consumer inclusivity.
5. Perceptions of consumer barriers do not significantly vary across position/designation categories (F = 0.371, p = 0.774). Mean scores are narrowly distributed, with managers and respondents in other positions reporting slightly higher means than franchise partners and owners. Despite these small differences, the overall pattern indicates statistical non-significance. Therefore, position or designation does not play a meaningful role in shaping perceptions of consumer barriers.

Retail Format analysis on Risks and Barriers

1. The ANOVA results indicate that perceptions of financial risks do not significantly differ across retail formats (F = 1.727, p = 0.179). Mean scores are relatively higher for Brick &

Mortar retailers (M = 2.403) compared to E-Commerce/M-Commerce (M = 2.361) and Omni-channel formats (M = 2.265). Despite these numerical differences, the variation is not statistically significant. This suggests that financial risk perceptions are broadly similar across different retail formats.

2. Findings show no significant difference in operational risk perceptions among the different retail formats (F = 1.502, p = 0.224). Omni-channel retailers reported the highest mean score (M = 2.331), followed by Brick & Mortar (M = 2.292) and E-Commerce/M-Commerce retailers (M = 2.226). The mean values are closely clustered, indicating limited variation. Overall, retail format does not significantly influence operational risk perception.
3. The analysis reveals no significant variation in security and privacy risk perceptions across retail formats (F = 0.017, p = 0.983). Mean scores are almost identical across Brick & Mortar (M = 1.611), E-Commerce/M-Commerce (M = 1.592), and Omni-channel retailers (M = 1.598). The extremely small F-value further confirms uniformity in perceptions. Hence, retail format does not affect security and privacy risk concerns.
4. A significant difference is observed in consumer inclusivity perceptions across retail formats (F = 5.081, p = 0.007). E-Commerce/M-Commerce retailers reported the highest mean score (M = 1.717), followed by Omni-channel retailers (M = 1.633), while Brick & Mortar retailers reported the lowest (M = 1.417). This indicates that retail format plays a meaningful role in shaping perceptions related to consumer inclusivity. Digital and hybrid formats appear to perceive inclusivity challenges more strongly than traditional formats.
5. The findings indicate no statistically significant difference in perceptions of consumer barriers across retail formats (F = 2.301, p = 0.102). Brick & Mortar retailers reported a comparatively higher mean score (M = 2.528) than E-Commerce/M-Commerce (M = 2.333) and Omni-channel retailers (M = 2.277). However, these differences are not significant at conventional levels. Thus, consumer barrier perceptions remain largely consistent across retail formats.

Annual Turnover analysis on Risks and Barriers

1. The findings indicate that perceptions of financial risks are broadly similar across all annual turnover categories. The mean values range from 2.17 to 2.35, with retailers in the 5 crore–10 crore category reporting the highest mean and those with less than 50 lakhs reporting the lowest. The ANOVA result (F = 0.533, p = 0.712) shows that the differences among turnover groups are not statistically significant. This suggests that annual turnover does not have a significant influence on perceived financial risks.
2. Operational risk perceptions show only marginal variation across turnover categories, with mean scores ranging between 2.25 and 2.39. Retailers with less than 50 lakhs turnover report a slightly higher mean, while those in the 1 crore–5 crore category show the lowest mean. The ANOVA outcome (F = 0.657, p = 0.622) confirms that these differences are not statistically significant. Hence, operational risk perceptions remain consistent irrespective of annual turnover.
3. The mean scores for security and privacy risks fall within a narrow range of 1.48 to 1.64 across all turnover groups. Retailers with 10 crore and above turnover show a marginally higher mean, whereas those with less than 50 lakhs show the lowest. The ANOVA result (F = 0.757, p = 0.554) indicates no significant difference among the groups. Therefore, annual turnover does not significantly affect perceptions of security and privacy risks.
4. Consumer inclusivity perceptions are closely aligned across turnover categories, with mean values ranging from 1.63 to 1.74. Retailers in the less than 50 lakhs category record a slightly higher mean compared to other groups. However, the ANOVA findings (F = 0.332, p = 0.857) reveal that these differences are not statistically significant. This shows that consumer inclusivity concerns do not vary meaningfully with annual turnover.
5. Perceptions of consumer barriers show minor differences across turnover levels, with mean scores ranging from 2.11 to 2.38. The highest mean is observed in the 5 crore–10 crore category, while the lowest is seen among retailers with less than 50 lakhs turnover. The ANOVA result (F = 1.321, p = 0.261) indicates that these variations are not statistically significant. Thus, annual turnover does not have a significant impact on perceived consumer barriers.

7.5.10 Relationship of Negative Impact Factors among Successful Implementation of Immersive Commerce

1. **Financial Constraints → Successful Implementation of Immersive Commerce**
The findings indicate that financial constraints have a statistically significant negative effect on the Successful Implementation of Immersive Commerce. The estimated path coefficient is −0.108 with a standard error of 0.01 and a critical ratio of −18.78, which is significant at $p < .001$. The standardized beta value ($\beta = -0.35$) shows a moderate to strong negative influence. Hence, the hypothesis stating a significant relationship between financial constraints and Successful Implementation is supported.
2. **Tech-Related Constraints → Successful Implementation of Immersive Commerce**
The results reveal that tech-related constraints significantly and negatively influence the Successful Implementation of Immersive Commerce. The estimate of −0.104, along with a standard error of 0.01 and a critical ratio of −18.20, confirms high statistical significance ($p < .001$). The standardized coefficient ($\beta = -0.339$) reflects a substantial negative impact. Therefore, the hypothesis is supported.
3. **Infrastructure Blockage → Successful Implementation of Immersive Commerce**
The findings show that infrastructure blockage has a significant negative impact on the Successful Implementation of Immersive Commerce. The path estimate is −0.102 with a standard error of 0.01 and a critical ratio of −16.80, indicating significance at $p < .001$. The standardized beta value ($\beta = -0.313$) suggests a notable adverse effect. Accordingly, the hypothesis is supported.
4. **Customer Readiness Issue → Successful Implementation of Immersive Commerce**
The analysis demonstrates that customer readiness issues exert a strong and statistically significant negative influence on the Successful Implementation of Immersive Commerce. The estimated coefficient is −0.170 with a standard error of 0.01 and a critical ratio of −24.35, significant at $p < .001$. The standardized effect size ($\beta = -0.454$) indicates the strongest negative impact among all constraints examined. Thus, the hypothesis is supported.
5. **Financial Risks → Successful Implementation of Immersive Commerce**
The findings confirm that financial risks significantly hinder the Successful

Implementation of Immersive Commerce. The estimate of −0.095, combined with a standard error of 0.01 and a critical ratio of −16.19, is statistically significant at $p < .001$. The standardized beta ($\beta = -0.302$) reflects a moderate negative effect. Hence, the hypothesis is supported.

6. **Operational Risks → Successful Implementation of Immersive Commerce** The results indicate that operational risks have a statistically significant and negative effect on the Successful Implementation of Immersive Commerce. The path coefficient is −0.113 with a standard error of 0.01 and a critical ratio of −20.74, significant at $p < .001$. The standardized estimate ($\beta = -0.387$) shows a strong adverse influence. Therefore, the hypothesis is supported.
7. **Customer Inclusivity → Successful Implementation of Immersive Commerce** The findings show that customer inclusivity challenges significantly and negatively affect the Successful Implementation of Immersive Commerce. The estimated value of −0.116, with a standard error of 0.01 and a critical ratio of −15.32, confirms significance at $p < .001$. The standardized beta coefficient ($\beta = -0.286$) indicates a meaningful negative impact. Consequently, the hypothesis is supported.

7.6 Conclusion

The study concludes that Immersive Commerce holds substantial strategic promise for modern Indian retailing, offering retailers meaningful opportunities to enhance customer engagement, strengthen product communication, and improve overall business performance. Retailers largely perceive Immersive Commerce not as a short-term technological trend but as a long-term, experience-driven strategy that supports differentiation, innovation, and sustained competitiveness. Positive impact factors such as experiential enhancement, product positioning, perceived value, sales growth, innovation capability, and growth potential significantly contribute to the Successful Implementation of Immersive Commerce, with innovation capability and sales growth emerging as particularly influential drivers.

At the same time, the findings clearly demonstrate that the Successful Implementation of Immersive Commerce is constrained by multiple interrelated challenges, risks, and barriers. Financial constraints, technological limitations, infrastructure blockage, and especially customer

readiness issues exert significant negative effects on Implementation outcomes. Among these, customer readiness emerges as the most critical impediment, highlighting the importance of consumer awareness, familiarity, and confidence in Immersive technologies. Risks related to operations, data security, privacy, and inclusivity further reinforce the need for cautious, well-planned, and controlled adoption strategies.

Demographic and retail characteristics show that most challenges and risks are perceived consistently across gender, age, experience, retail format, turnover, and location, suggesting that many barriers are structural rather than group-specific. However, selective differences—particularly in consumer readiness, security and privacy concerns, and inclusivity perceptions—indicate that managerial roles, experience levels, and retail formats influence how Immersive Commerce challenges are interpreted and managed. These variations underline the importance of contextual and role-sensitive strategies in Implementation.

Overall, the study establishes that Immersive Commerce in Indian retail represents a balanced mix of opportunity and risk. While it has strong potential to transform customer experiences and support long-term growth, its success depends on strategic alignment, technological reliability, financial preparedness, consumer education, and inclusive design. The conclusion reinforces that Immersive Commerce adoption in India must be gradual, context-sensitive, and strategically governed, ensuring that innovation is complemented by risk management and inclusivity. By addressing both enabling factors and constraints in an integrated manner, Indian retailers can achieve sustainable and effective Implementation of Immersive Commerce in an increasingly competitive and digitally evolving retail landscape.

CHAPTER 8

RECOMMENDATIONS, IMPLICATIONS AND FUTURE SCOPE OF RESEARCH

8.1 Recommendations

8.1 Recommendation to the Retailers, Owners, Franchise Partners and Decision Makers

The following recommendations are given in order to contribute to the successful, sustainable, and inclusive introduction of immersive commerce into contemporary Indian retailing. The recommendations are aimed at the owners of the retail, the managers, the franchise partners, and the senior decision-makers who have the responsibilities of strategic planning, adoption of technology, and implementation of the operations.

1. Retailers must adopt immersive commerce gradual and in phases instead of spending heavily on the same. Pilot testing can be done in specific stores or lines of product which will minimize financial risk and will enable the retailer to determine the feasibility of operations within large scale after trial.
2. Retailers should be keen to teach and instruct customers on the use of immersive technologies. Customer confidence and hesitation can be lessened and overall acceptance can be increased through in-store demonstrations and assisted usage.
3. The immersive systems should be stable, user friendly, and properly integrated with the existing retail business. Technical problems can easily affect the level of customer trust adversely and undermine the perceived value of immersive experience.
4. Managers and owners need to promote the culture of innovation by educating employees and encouraging them to experiment with new digital tools. Ongoing education and the capacity building that is internal will be required to help maintain and support the long term effective application of immersive commerce.
5. The features, advantages and use of products should be clearly displayed in the case of immersive apps. Retailers should also make sure that immersive experiences help people make informed choices instead of acting as decorative elements.

6. The immersive solutions should be considered with great care by the retailers in terms of cost and anticipated returns and the overall influence on operation. Developing standard operating procedures and selecting the good technology partners will reduce the disruptions and financial exposure.
7. Data protection systems and cybersecurity should be developed, which would protect the information of customers. Open dialogue on the use of the data can aid in the creation of trust and mitigating the factor of privacy concerns.
8. The retailers need to make sure that immersive commerce is not used to eliminate the traditional modes of shopping. It will be necessary to provide alternative options and create user-friendly interfaces that will involve customers with different levels of digital skills.
9. Strategies of the immersive commerce ought to be adjusted to regional infrastructure, consumer behaviour and online preparedness. Geographical tailoring can increase efficacy and can guarantee enhanced returns to immersive investments.

8.2 Recommendations to Retail Technology Providers / Immersive Solution Developers

1. Simple, intuitive and minimal learning by the retailers and the customers should be expected of an immersive solution. The simplicity of navigation, straightforward guidelines and fast onboarding will aid in enhancing the readiness of the customers and minimize the adoption resistance.
2. The providers of technology have to focus on constant performance, low latency, and small system failure. The durable solutions create trust in the retailers and secure brand image and continuous customer experiences during the immersive interactions.
3. Immersive solutions must be modulable and adaptable to the needs of small and large retailers with limited and unlimited financial capacity. Phased deployment and flexible pricing models can be used to promote the broader adoption, particularly between small and medium retailers.
4. The solutions must be integrated with current retail solutions like POS, inventory, CRM and e-commerce solutions. Integration enables the efficiency of operations and facilitates effective retail operations.

5. Immersive solution developers are to ensure effective cyber security measures and adhere to data protection laws. Open data management will assist retailers to handle customer privacy and online confidence issues.
6. The technology providers are to provide on-going training, onboarding, and responsive technical support. Proper post implementation support would mean that retailers are able to use immersive solutions to full potential and address operational challenges promptly.
7. The immersive technologies must be developed to serve various user groups such as old customers and individuals with minimal internet skills. Inclusivity can be advanced by the use of features like language options, accessibility support, and simplified modes.
8. The developers are advised to take into account regional infrastructure constraints, equipment availability, and diverse digital maturity of the Indian markets. Local customization increases relevancy and increases the implementation success.
9. Real-time store feedback and usage data should drive the creation of regular updates and improvement of solutions. Constant innovation keeps immersive solutions up to date, competitive, and in line with the changing retail requirements.

8.3 Recommendations to Policy Makers and Government Bodies

1. Government bodies should prioritize improvements in broadband connectivity, network stability, and digital infrastructure across urban, semi-urban, and rural regions. Reliable infrastructure is essential for the smooth deployment of immersive commerce technologies in the retail sector.
2. Policy makers should introduce subsidies, tax incentives, and low-interest financing schemes to support retailers adopting immersive technologies. Such financial assistance can reduce initial investment barriers, especially for small and medium retail enterprises.
3. There is a need for well-defined regulations covering data privacy, cybersecurity, consumer protection, and ethical use of immersive technologies. Clear guidelines will reduce uncertainty for retailers and technology providers and encourage responsible adoption.
4. Government initiatives should focus on enhancing digital literacy among retailers, employees, and consumers. Training programs, workshops, and certification courses can improve readiness and confidence in using immersive commerce technologies.

5. Policy makers should encourage collaboration between technology developers, retail firms, and academic institutions. Innovation hubs, incubation centres, and pilot projects can accelerate the development and testing of immersive commerce solutions.
6. Government bodies should ensure that immersive commerce adoption does not exclude vulnerable groups. Policies promoting accessibility standards, multilingual support, and inclusive design can help reach diverse consumer segments.
7. Establishing common standards for immersive commerce platforms can improve compatibility, reduce integration costs, and enhance scalability. Standardization will also help retailers adopt immersive solutions more efficiently.
8. Policy initiatives should be tailored to the varying levels of digital maturity across Tier 1, Tier 2, and rural markets. Region-specific policies can ensure balanced growth and equitable adoption of immersive commerce across India.
9. Government bodies should support empirical research on immersive commerce adoption and its economic impact. Evidence-based insights will help refine policies, monitor outcomes, and guide future digital retail strategies.

8.4 Recommendations to Retail Associations and Industry Bodies

1. Retail associations should actively promote awareness about immersive commerce through seminars, webinars, and industry forums. Knowledge-sharing platforms can help retailers understand practical benefits, execution challenges, and best practices from real world case studies.
2. Industry bodies should organize structured training programs to build digital and immersive commerce capabilities among retailers and employees. Skill development initiatives can reduce technology-related anxiety and improve adoption readiness across the sector.
3. Retail associations can act as intermediaries by connecting retailers with credible immersive solution developers. Such collaboration helps retailers access reliable vendors and encourages solution customization based on industry needs.
4. Industry bodies should formulate standardized guidelines for immersive commerce implementation, covering areas such as usability, security, and customer engagement. These guidelines can support consistent and responsible adoption across retail formats.

5. Retail associations should represent retailer concerns to government bodies and advocate for supportive policies, subsidies, and infrastructure development. Collective representation strengthens the industry's voice in shaping favorable regulatory frameworks.
6. Industry bodies should promote inclusive design principles and ethical use of immersive technologies. Ensuring accessibility and consumer protection will enhance trust and long-term acceptance.
7. Associations can initiate pilot programs and shared immersive labs to demonstrate feasibility and benefits. Demonstration models reduce uncertainty and help smaller retailers visualize practical implementation.
8. Retail industry bodies should collaborate with academic institutions to support research on immersive commerce trends and impacts. Evidence-based insights will guide strategic decisions and strengthen industry preparedness.
9. Industry bodies should facilitate networking among retailers to share experiences, challenges, and success stories. Peer learning encourages confidence and accelerates the diffusion of immersive commerce across the retail ecosystem.

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8.2 Implications of the Study

8.2.1 Theoretical Implications

The study contributes significantly to the literature of immersive commerce through the extension of empirical knowledge to non-Western-based environments and the establishment of solid ground on the Indian retail environment. The study provides a holistic model of the immersive commerce adoption by focusing on both positive impact factors (opportunities, customer loyalty, business performance, and future potential) and negative impact factors (challenges, risks and barriers). The results confirm the theories of experiential enhancement and innovation capability along with perceived value as important determinants of successful implementation given that they support risk and constraint-based viewpoints, which highlight structural and consumer-sided constraints. The balanced management of enablers and inhibitors makes this integrated approach enrich the existing models by showing that success of immersive commerce cannot be achieved solely through opportunities but through the balanced management of the enablers and inhibitors.

8.2.2 Implications to Retailers in their Management.

The results clearly give retailers an idea to follow when thinking of adopting immersive commerce or even those who are already doing it. Retail managers ought to consider immersive commerce as a strategic investment that can be long-term, instead of a short-term sales tool, and experiential enhancement and innovation capability are the main success factors. As customer readiness was revealed to be the most potent negative force, the retailers are obliged to invest in customer education, assisted immersive experiences, and onboarding to establish familiarity and confidence. The adverse effect of financial and operational risks implies that introduction should take place in phases with pilot testing and constant control of the performance as opposed to massive and immediate rollouts. Retailers also need to comply with the fact that the immersive solutions should be dependable, easy to use, and blend perfectly with the current operation to avoid losing customer loyalty.

8.2.3 Retail Technology Providers and Immersive Solution Developers Implications.

In the case of the immersive technology providers, the research indicates that there is a need to come up with affordable, scalable, and reliable solutions that would suit the conditions of retailing in India. As the retailers raised profound signs of worry over technical dependability, safety, and interruption of operation, the solution developers ought to focus on dependability, simple integration and high-quality post implementation service. The great level of anxiety regarding data safety and privacy suggests that immersive platforms should incorporate comprehensive cyber security systems and open data-processing solutions. Moreover, inclusivity issues suggest that adaptive interfaces, multilingual functionality, and accessibility-focused design are necessary to provide immersive experiences that would apply to a wide range of consumer groups instead of focusing solely on digitally elite demographic segments.

8.2.4 Implications to Policy and Government.

The results imply that policymakers have a significant part to play in ensuring the adoption of immersive commerce as part of the bigger digital retail agenda. As the blockage of infrastructure and consumer preparedness are important factors of implementation, government measures to implement should strengthen digital infrastructure, particularly in Tier 2 cities and new retail clusters. Digital innovation policies can take the form of incentives, subsidies or tax breaks on financial risks that can reduce perceptions of financial risk among retailers. The needs of the standardized regulatory frameworks of immersive technologies, data protection, and consumer privacy are further highlighted by the high level of anxiety about the security and privacy risks. A set of policies can raise the trust of retailers and encourage the use of immersive commerce technologies responsibly.

8.2.5 Retail Association and Industry Body Implications.

Retail associations, and industry bodies can be very instrumental in playing the facilitative aspect by being the knowledge intermediaries. Considering that there is a similar perception of the challenges in all retail format and sizes, associations can administer training, workshops, and

best-practice forums to raise the level of managerial and technical preparedness. The industry bodies can also work together with the technology providers in coming up with standardized implementation systems to help eliminate uncertainty and risk among the retailers. These organizations can speed up the adoption rate by encouraging awareness campaigns and mutual learning platforms and reducing the cost of trial and error on the parts of individual retailers.

8.2.6 Implications on consumers and Society

The article focuses on inclusivity as an important issue, which means that the implementation of immersive commerce should be socially accountable. The retailers should make sure that immersive technologies will not substitute the traditional ways of shopping but will work in harmony to ensure that digitally less sure consumers are not left behind. The results underscore the fact that there should be inclusive innovation, which will cater to different digital literacy, physical ability, and cultural diversity levels. When applied intelligently, immersive commerce will increase consumer empowerment, decision confidence, and satisfaction with shopping and decrease the digital divide.

8.2.7 Strategic Implications on the Indian Retail Ecosystem

On a bigger scale, it can be suggested that the immersive commerce can only become a strategic differentiator of the Indian retailer in the case when it is adjusted to the specifics of the local market. Standardized approaches to different regions, formats, and segments of consumers can cause inefficacy and failure. Rather, immersive commerce needs to be contextual, adaptable and strategically controlled. The findings support the idea that sustainable success is based on balancing between innovation and risk management, experimentation and discipline, and technological breakthrough and inclusivity.

In a short list, the consequences of this research point out that immersive commerce in the Indian retail is not a sure-footed success or an unworthy investment. Its successes all rely on the sound managerial decision making, enabling policy framework, responsible technological design and consumer centric implementation. When issues of these implications are looked at together, stakeholders will be able to make sure that immersive commerce will play a significant role in the long-term competitiveness and transformation of the modern Indian retailing.

8.3 Future Scope of Research

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Based on the findings, as well as the limitations of the existing study, the following research directions are to be proposed in the future:

1. Consumer-Centric Perspective

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The future study can be approached by studying immersive commerce through the lens of consumers by taking into consideration customer perceptions, satisfaction, trust and real usage behaviour towards the consumers among the different demographics in India.

2. Longitudinal Impact Analysis.

   To determine the long-term effect of immersive commerce on customer loyalty, brand equity, and long-term business performance in comparison to short-term performance as defined by scholars, longitudinal studies could be conducted.

3. Comparison of urban and rural and Tiers.

   The use and success of immersive commerce in urban, semi-urban, and rural markets and /or Tier I, Tier II, and Tier III cities can also be compared in future studies.

4. Technology-Specific Investigations

   The future study might offer the limited immersive technology such as AR, VR, MR, metaverse applications or AI-based immersive devices to assess their role in retail performance respectively.

5. Specialized Retail Analysis.

   It is also possible to conduct thorough studies on the subject matter, including researcher-initiated studies, on specific forms of retail (such as fashion, electronics, grocery, or healthcare) to get to know more about the opportunities and constraints of category-based immersive commerce.

6. Cost-benefit and ROI Modelling.

   Further research can generate some financial modeling to project the break even plans, cost effectiveness and break even on the investments of immersive commerce application in Indian retail.

7. Digital Literacy Research and Consumer Preparedness.

   Since it became evident that the issue of customer readiness has become one of the primary ones, the research that will be conducted next can examine the issue of digital literacy, technology anxiety, and learning curves as the aspects that define the adoption of immersive commerce among the Indian consumers.

8. Inclusivity and Accessibility Research.

   Future research can explore ways to make immersive commerce more accessible to older people, those with disabilities, and consumers with a lingual background.

9. Policy and Regulatory Framework Analysis.

   The impact of government policies, data protection laws, digital infrastructure initiatives, and regulatory support on the utilization of immersive commerce will be made available to the researchers.

10. Comparative Cross Country Studies.

    A comparative analysis of India and other new or developed economies may provide some hint of certain disparities in the context-related adoption of immersive commerce, and strategic performance.

11. Organisational Readiness and Change Management.

    Future research can look into internal organisational factors such as leadership support, employee training, change resistance and culture of innovation in using immersive commerce.

12. Integration of Omnichannel and Phygital Retail Models.

    Scientists have opportunities to define the integration of immersive commerce and omnichannel strategies and phygital customer experiences in order to offer consumers seamless customer experiences.

13. Security, Confidentiality and Morality.

    Cybersecurity threats, the attitude of consumers towards the use of their data, and the process of building the trust of consumers in an immersive commerce environment can be related to the future of the research.

14. Influence of new technology.

    How immersive commerce can be integrated with emerging technologies, such as blockchain, AI-driven personalization, IoT, and digital twins in retail, can be studied in the future.

15. Mixed-Method and Experimental Methods.

    Investigators may opt to adopt experimental research methods, case study, or a combination of the two research approaches to obtain more qualitative research and more quantitative research validation.

    The given research opportunities can be utilized in the future to augment the existing research by developing the theory and offer valuable information about the active application of immersive commerce to Indian retailing.

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CHAPTER 1

INTRODUCTION

1.1 Background of the Study

Retail sector is a vital segment of contemporary economies as it is the main point of interaction between the production system and consumption markets. Retailers are strategically important in terms of ensuring that goods and services are distributed efficiently, creating workplaces, enhancing entrepreneurship, and adding to the national income and gross domestic product (GDP) to a significant extent (Deloitte, 2020; Reardon et al., 2019). Even more so in emerging economies like India, retailing plays even more significant role in terms of scale, varieties, and ability to absorb high number of workforce. This is due to the fact that the Indian retail market has undergone significant change in the last 20 years, which has been influenced by economic liberalization, urbanization, increasing disposable incomes, demographic changes, and the fast-paced technological development (Mukherjee and Patel, 2021).

Historically, Indian retailing took the form of unorganized physical formats, which are dominated by small family owned stores, lack of technological penetration and localized operations. Although these conventional formats are still prevailing together with the contemporary retail, the industry has experienced gradual growth of structured retail chains, supermarkets, shopping malls, specialty shops, and large-format retailers (PwC, 2022). In parallel to this structural transformation also digital technologies have transformed the retail activities, as retailers can now implement e-commerce, mobile commerce and omnichannel strategy. These changes represent the strategic attempts of retailers to be more efficient in their operations, increase their market coverage, and react better to the growing rivalry (Verhoeff et al., 2015).

Competition in the modern world of retail is no longer concentrated around price and product range but it has grown to include experience creation, service quality, technological sophistication and innovation capability. The retailers have come to appreciate the fact that sustainable competitive advantage is realized with the differentiation strategy that contributes to efficient engagement and value creation instead of, solely, cost leadership (Grewal et al., 2020). Digital transformation has therefore become a strategic need of retailers that wish to stay relevant in the fast changing markets. Artificial intelligence, big data analytics, Internet of Things (IoT), and immersive technologies are some of the technologies that are increasingly being applied in retail operations to facilitate decision-making, personalization, and experience (Pantano et al., 2022).

Immersive commerce is one of the new digital technologies that have become prominent on the list of next-generation retail approaches that have significant implications on retailers. Immersive commerce is the application of immersive technologies (augmented reality (AR), virtual reality

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(VR), mixed reality (MR), extended reality (XR), and three-dimensional (3D) visualization) to design an interactive and experiential retail experience (Flavián et al., 2019). According to the retailer standpoint, immersive commerce is a business mechanism that supports product display, brand distinction, operation performance, and incorporation of both physical and digital retail environments. In contrast to the traditional digital interfaces based on the intensive use of the static images and texts, immersive commerce allows retailers to provide the realistic simulation, interactive demonstrations, and digitally enhanced store settings that are highly resembling the physical retail experience (Hilken et al., 2017).

In contemporary Indian retailing where retailers exist in a heterogeneous and competitive ecosystem, the applicability of immersive commerce is especially strong. The Indian retailers serve multiple markets, whose geographic differences, infrastructural differences, and technological maturity differences are varying. Indian retailing giants and online stores have started to implement immersive apps, like with AR-based virtual product display, digital-enhanced in-store generating, and virtual showrooms to reinforce their omnichannel models (BCG, 2021). These initiatives are a strategic intent of retailers to enhance customer interaction, optimise merchandising performance and differentiate the experience in a saturated market place.

Strategically, the immersive commerce can provide retailers with a number of opportunities. It allows greater product positioning as it allows visualizing product characteristics and exploring them actively, thus minimizing product evaluation ambiguity (Javornik, 2016). Experiential improvement could be provided through immersive interfaces that develop engaging environments that foster exploration and extended interaction, which may have a positive impact on the results of retail performance (Poushneh and Vasquez-Parraga, 2017). Immersive technologies also allow retailers to facilitate better planning of store layouts, enhance online and offline channel integration, and visual merchandising (Pantano and Vannucci, 2019). Together, these possibilities can make immersive commerce a strategic resource that can be used to facilitate innovation, differentiation, and long-term growth.

Notwithstanding these, integrating immersive commerce poses a tremendous challenge to retailers especially in the developing markets like India. One of the most important inhibitors is financial restraints. Immersive technologies are expensive in terms of hardware and software, as well as infrastructure and trained staff to develop, roll out and maintain immersive technologies. Scalability, long-term financial sustainability, and return on investment (ROI) are some of the aspects that retailers tend to be uncertain about, thus impeding adoption decisions (Huang and Liao, 2017). These obstacles are more acute in the case of small and medium-sized retailers that have limited capital resources.

There are also technological limiting factors that make the implementation of immersive commerce difficult. The retailers are often faced with challenges of integrating systems, compatibility with the existing information systems, and dependence on third parties as information technology providers. Poor connectivity to more sophisticated immersive devices,

unreliable Internet connectivity, and high technological change are also a threat (Roggeveen & Sethuram, 2020). Furthermore, deficiency of internal technical knowledge and standardized implementation structures may be a barrier to successful implementation and continuity.

The problem of infrastructure is also decisive on the part of the retailer. Not all physical retail spaces are suitable to having immersive installations, either because of the physical space, layout, or insufficient power and connectivity infrastructure. Differences in the infrastructural development of urban and semi-urban areas also limit the consistency of their application to retail networks (KPMG, 2021).

The other important predeterminer of implementing immersive commerce is the organizational readiness. Mainstream retailers are required to synchronize immersive activities with organizational goals, create internal capabilities, and instill a culture of promoting innovation and technology experimentation. The efforts of implementation can be sabotaged by resistance to change, a lack of commitment by the managers and inadequate training of employees (Tornatzky and Fleischer, 1990). Retailers should thus invest in skills development, process redesigning and change management in order to achieve successful adoption.

Alongside the operational challenges, immersive commerce brings forth a new sphere of risk, which the retailers will have to address proactively. The origins of financial risks are large initial investments and unpredictable performance, and the origins of operational risks are technical failure, unavailability of the system, and complexity of maintenance (Pantano et al., 2022). Security and privacy threat are also high because immersive platforms are usually associated with data intensive applications and online interactions. To reduce these risks, retailers need to provide a strong governance system, cybersecurity, and compliance structure (Martin et al., 2020).

However, future prospects of immersive commerce can be significant to the retailers in contemporary Indian retailing. With the enhancement of technology infrastructure, the implementation cost will decrease, and the organizational ability will be in maturity, immersive commerce is likely to become accessible and strategically feasible. A successful adoption of immersive technologies into the business models of the retailers can help them increase the ability to innovate, competitive advantage, and sustainable performance results (Grewal et al., 2020). Immersive commerce is also compliant with the larger digital transformation programs, which serve the long-term strategic planning of retailers.

Academically, the available studies on immersive commerce have mainly addressed consumer perceptions and technological aspects, but only a few studies have been conducted on the retailer-oriented standpoints. Empirical research on immersive commerce as a strategic, operational, and organizational phenomenon is still significantly lacking in the perspective of retailers, especially in the background of the emerging markets like India. This gap needs to be approached to come up with extensive theoretical frameworks and managerial perspectives.

To that end, the current study takes a retailer-based approach to analyze the possibilities and issues related to the execution of the immersive commerce strategies in the contemporary Indian retailing. The study aims at providing substantial contributions to the academic literature by making appropriate contributions to organizational capabilities, strategic outcomes, retailer perceptions, and contextual constraints in order to provide practical insights to both retailer decision-makers and policymakers. This chapter provides the contextual and conceptual background of the study and logically the identification of the research problem in the next section.

1.2 Research Problem

The immersive commerce is exposed to the international markets, specifically the developed markets, but the Indian retail market has not been fully explored with regard to strategic application. The focus on the Western countries, to a large scale, occupies the available literature, which ensures a significant gap in the familiarity with the peculiarities of the opportunities and challenges of Indian retailers. This lack of localized empirical research causes concern to the retail businesses as they are trying to adopt and get acquainted with immersive commerce and in particular, in terms of experiential enhancement, product positioning, financial, technological and infrastructural readiness and its effects to the shopping experience and business performances in the Indian urban and rural markets. Without bridging this gap, the image of Indian retailers as the engine of the global digital trends will crash, and the latter can expect a decrease in the customer interactions, loss of the competitive advantage, and little market growth. Besides this, retailers are able to invest blindly, without particular research and knowledge, leading to low returns and disintegrated digitalization. In this way, the suggested research work will critically analyze the opportunities and challenges of implementing immersive commerce in Indian retail to fill the knowledge gap that exists and help in the further planning with the relevant implications. Therefore, it can be concluded that the literature review suggests the following research questions:

1. What are the implications of the opportunities on the successful implementation of immersive commerce in Indian retail?
2. How does the Customer Loyalty influence the Immersive Experience in retail environment?

3. How far are reliability and consumer engagement determined to achieve success in the adoption of immersive commerce technologies?
4. What is the role of immersive commerce in business performance of retailers in terms of sales improvement, retention of customers, and keeping up to trends?
5. How does innovation capability as well as growth potential influence the way in which the retailers view the future of immersive commerce and the effective application of immersive commerce?
6. How perceived challenges (financial, technological, infrastructural, readiness-related) and risk-based affect the successful implementation of immersive commerce among Indian retailers?

1.3 Conceptual Model

The central outcome of the research, i.e., Successful Implementation of Immersive Commerce in Modern Indian Retailing, will be placed in both aspects of the positive impact and factors of the negative impact factors of the theoretical framework of the research. According to this model, there are six thematic variables, Opportunities, Customer Loyalty, Business Performance, Future Potentials, Challenges, and Risks and Barriers.

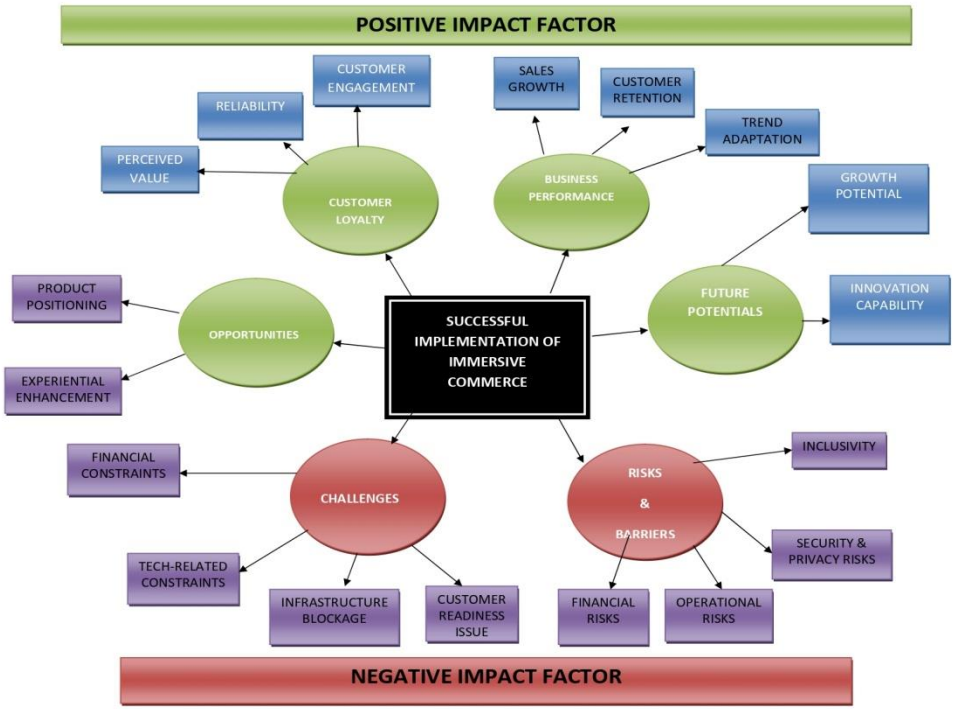
The factors of opportunities viz., Experiential Enhancement and Product Positioning which enable retailers to make the shopping locations more exciting and differentiated are on the positive side. As a result of these advancements is shaped by the Perceived Value, Customer Engagement and Reliability, the Customer Loyalty is framed. Enhanced Customer Loyalty is another way of strengthening Business Performance that can be elicited by Sales Growth, Customer Retention, and Trend Adaptation. Moreover, Future Potential including Growth Potential and Innovation Capability has a strategic value after which retailers can obtain in the scenario of implementation of immersive commerce technologies.

The model also considers the fact that Challenges that may impede the adoption are substantial and numerous, such as Financial Constraints, Tech-related Constraints, Infrastructure Blockages, and Customer Readiness Issues. Also, among the Risks and Barriers, there will be Financial Risks, Operational Risks, Security and Privacy Concerns, Inclusivity and Consumer Barriers.

All these factors are interlinked and collectively contribute to implement immersive technologies.

Figure 1.1

The Conceptual Model



This model suggests that the positive elements of influence positively influence the probability to achieve successful implementation of immersive commerce, and it is the negative elements that have a negative impact on probability of its implementation. These contributing and hindering forces enhance the success of immersive commerce and the strategies thus initiated can be incorporated into the Indian retail environment.

1.4 Hypotheses of the Study

Thus, the following hypotheses were formulated in the study.

H1: There is a significant positive relationship between perceived opportunities and the successful implementation of immersive commerce among retailers.

H2: Retailers' perception of customer loyalty is significantly influenced by the use of immersive commerce experiences.

H3: Immersive commerce has a significant positive effect on overall business performance in the retail sector.

H4: Perceptions of Innovation Capability and Growth Potential differ significantly across retail characteristics

H6: Retailers' demographic characteristics significantly influence the challenges of implementing immersive commerce adoption.

H7: Retailers' demographic characteristics significantly influence the risks and barriers of implementing immersive commerce adoption.

H8: There is a significant causal relationship between the combined positive impact factors (opportunities, customer loyalty, business performance, and future potentials) and the successful implementation of immersive commerce.

H9: There is a significant causal relationship between the negative impact factors (challenges, risks and barriers) and the successful implementation of immersive commerce.

1.5 Operational Definitions of the Terms/Concepts

The following terms/concepts were used in the study as briefly explained below;

1.5.1 Modern Indian Retailing

It is the systematized, technology-based, and customer-centric retail ecosystem that combines both digital and physical platforms to bring continuous shopping experiences through post-pandemic period.

1.5.2 Strategy

The Immersive Commerce provides an opportunity to Indian retailers: it increases the customer satisfaction, provides virtual try-ons, and improves the online conversion rates.

1.5.3 Retailer

The Retailer means any retail seller who is in adoption or familiarisation with immersive technologies like Augmented Reality (AR), Virtual Reality (VR),Mixed Reality, Artificial Intelligence (AI),3D product visualization or metaverse to engage customers on diversified shopping experience.

1.5.4 Opportunities

It comprises the factors viz., Experiential Enhancement and Product Positioning which measure the growth of successful implementation of Immersive Commerce.

1.5.5 Customer Loyalty

It indicates that retailer's perception towards customer perceived value, customer engagement and system reliability.

1.5.6 Perceived Value

Customer perceived value is the way that commerce is immersive and customers are more knowledgeable, having more pleasure and confidence in their decision to buy. It is assumed that increased perceived value will translate to increased satisfaction, loyalty, and repeat patronage.

1.5.7 Customer Engagement

Customers perceive customer engagement as the degree of active interaction and engagement that they establish by experience the immersive commerce setting. It is seen that increased engagement will lead to customer attention, time taken to shop and emotional attachment to the brand.

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1.5.8 System Reliability

The term system reliability can be used to describe the ability of the immersive commerce technologies to operate successfully and without error when interacting with customers. Reliable systems are regarded by retailers as the key to establishing the customer confidence and the secured shopping right through.

1.5.6 Successful Implementation of Immersive Commerce (SIIC)

Successful Implementation of Immersive Commerce is the sum total of all the positive impact factors and negative impact factors that significantly affect the successful implementation of immersive commerce.

Positive Impact factors are those factors that support the successful implementation of Immersive commerce is considered as Positive Impact factor. The factors that lead the successful implementation of immersive commerce are opportunities, customer loyalty, and business performance and growth potentials. Whereas, the negative impact factors are the factors that hinder the successful implementation of immersive commerce like challenges, risks and barriers.

1.6 Significance of the Study

The relevance of the phenomenon of immersive commerce concerning digital transformation of the retail environment in India is covered by the current literature. Since retailing the world over is adopting the new advanced technologies that are comparable with the Augmented Reality (AR), Virtual Reality (VR) and Mixed Reality (MR) that creates an explicit deep immersion of the learning process through the shopping, the current study focuses on the role that the new technologies play in creating an engaging, experiential and people oriented shopping experience particularly in India where the retailing industry is highly diversified and complex. India boasts of one of the most appealing consumer markets with a high population of tech savvy and high penetration of smart phones with the potential of switching to the immersive commerce. And at the same time the retail sector of the country is also characterized by very accentuated differences of structured forms and differences of unstructured forms, a divide between urban and rural, and an extravagance of national substratum and fiscal limitation all which make it very

specifically down to earth to further implementation but which makes it very specifically potentially momentous.

The study scope will then be to determine not only the opportunities, i.e. the relationship with the consumers, the enhanced visualisation of the product and the enhanced brand experiences, but also the practical constraints, i.e. the funds available of the technology, the desire to work with the technology by both the retailer and the consumer, the infrastructure of the digital technology and finally the obstacle to the adoption of the technology. These outcomes will provide retail stake holders, including store owners, retail administrators, technology producers and policy makers in the nation with a concept of challenges of the immersive commerce in India. Remembering the sequential research of the variables, the development of experience to financial and technological limitations of consumer acceptance behaviors, the impact of the immersive experiences to the consumer satisfaction and business performance, the research is a contribution to the existing academic discussion. Empirically, it sheds light on how such a concept of immersive commerce can be a potentially revolutionary way of changing the strategies and creating innovations and competitive advantage in the Indian retail and also the places where government support, digital inclusion and government funds of infrastructure can provide an extraordinary payoff to the timeliness of adoption, particularly in smaller and medium sized retailers. The current study will enlighten the empirical summary of immersive commerce, and, therefore, address queries that are founded on the perspective of the future of consumer demand, retail innovation and the dynamics of commerce digitalization in India in general. The convergence of technological, behavioural, operational and infrastructural knowledge is developing a conceptual framework through which the research can use the same to inform the current and future scopes of the research in the emerging economies hence a bridge of an academic practical gap being bridged. Therefore, the results are not only timely and relevant, but also tactical that is much needed by the policy makers, both the retailers and technologists in India to chart out a digital future of business.

1.7 Scope of the Study

This is a wide and comprehensive research that deals with psychological, technological, economic, and cultural dimensions of the immersive commerce in the Indian retail business all

are captured in this comprehensive and detailed study. It attempts to provide a detailed description of the history of immersive commerce, its opportunities and issues in its application in India.

The study has value to add to the existing literature on immersive commerce because it integrates the opinion of various stakeholders and adopts a multidisciplinary approach, The study will also have value to add to the wider debate on immersive commerce since it presents context-related insights that could be used in forming strategies in other emerging markets with similar demographic and technological orientations in Indian Context.

The paper is restricted geographically to the retail sector of India that is considered to be paid attention to IT/Retail Hubs, especially, Tier 1 and Tier 2 cities. The retailer that is on adoption or familiarization with Immersive Commerce is considered to be included in the study.

This paper also finds seven thematic areas in (1) Opportunities of immersive commerce in Indian retail; (2) Customer Loyalty; (3) Impact on business performance; (4) Future Potentials of immersive commerce; (5) Future challenges facing the successful implementation of immersive commerce; (6) Risk and Barriers to the effective implementation of immersive commerce.

1.8 Limitations of the Study

The limitations of the study are as follows.

1.8.1 Limitation in Geographical Scope.

The research is limited on the selected Tier 1 and Tier 2 Indian retail hubs. This could be due to the fact that the findings might not be entirely representative of the retailers in Tier 3 cities, rural market and small unorganized retail environment.

1.8.2 Retailer-Centric Perspective

The study focusses on the retailers point of view, towards immersive commerce, not from the responses of consumers. Consequently, Consumer Acceptance, Consumer Behaviour, experience or acceptability are not based on the consumer evidence but on the interpretation of the retailer.

1.8.3. Cross-Sectional Character of Information.

A single time-point survey was used in data collection, and this fails to measure the change in perception over time. Therefore, the research is unable to gauge the potential changes in the adoption of immersive commerce with the maturity of technology.

1.8.4 Self-Reported Responses

The research is based on self-reported data, which can be biased by personal elements, organizational bias, social desirability bias, or the willingness of the respondents to disclose internal business facts.

1.8.5 Difference in Technological Exposure.

Retailers can be extremely different in the degree of exposure to immersive technologies. It is possible that retailers who do not have a lot of practical experience provided answers which were guided by expectation and not actual implementation.

1.8.6 Poor Measuring of Real Usage.

Perceived opportunities, challenges, and performance outcomes are evaluated in the study, but actual performance measures, including financial ROI, footfall analytics, or conversion data cannot be measured due to the requirements of confidentiality.

1.8.7 Differences in Technology Adoption Stage.

The adoption of immersive commerce remains immature in India, and most of the respondents have been exposed to pilot implementations. Therefore, the perception can be different as compared to well-established immersive retail settings.

1.8.8 Platform and Tool Diversity

The research fails to distinguish particular immersive platforms (AR, VR, Meta verse, AI-3D configurations). Capabilities differ in a wide range depending on the type of technology and hence certain differences may not be completely represented.

Moreover, the research offers significant information on strategic, operational, and experiential dynamics that affect the process of implementing immersive commerce in the retailing sector in India.

1.9 Chapter Scheme

The research report covers 8 chapters,

Chapter 1 – Introduction

The concept of immersive commerce was developed in this chapter and explains why the concept remains relevant in the current Indian retail industry. It also presents the problem statement that will be driving force behind the research, the main research objectives, that will drive the study and the proposed conceptual model. The joint hypotheses and operational terms that have been defined as well as demonstration of the significance, extent and deficiency of the study are also displayed in the chapter. The chapter concludes with the chapter scheme which expounds how the remaining part of the thesis is going to be organized.

3 **Chapter 2 -Review of Literature.**

The chapter will give a review of the literature available in the academic and industry on the topic of immersive commerce and its related constructs such as opportunities, challenges, consumer acceptance, business performance, and business potential. The thematization of the review is done in such a way that it follows the evolution of the notion, the pattern of studies and advancements of theories in various situations. The review concludes with research gaps being found to support the reason why the current research was required and gives a platform of what is still unavailable in the body of knowledge existing which supports the hypotheses and conceptual model.

Chapter 3 – Immersive Commerce in Indian Retail - A Theoretical Framework

The theoretical foundation of immersive commerce is provided in this chapter in a very elaborate manner. In discussing its strategic importance to the modern retailing, it clarifies the concept, development and technology environment of immersive commerce in India. In this chapter, the discussion of the Indian retail structure, the forms of immersive commerce, its implementation

by the retailers, and the connection between immersive commerce and the modern evolution of retail are also presented. The chapter then wraps up with placing the study within a broader context of technological and retail developmental framework.

Chapter 5 –Research Methodology

This chapter explains the methodological framework that has been taken by the study. It discusses the approach towards the research design: the Research Onion approach, and points out data sources, population, and sampling methods as well as the creation of the instruments. It will involve the pilot study, data cleaning and tools and software that were applied to analyze the data. In addition, it also has randomness, normality, reliability, validity and common method bias tests, which ensure methodological rigor. The chapter ends by providing the conclusion that confirms the appropriateness of the process of research that has been implemented.

Chapter 5 – Analysis of Positive Impact Factors that affect the Successful Implementation of Immersive commerce

The chapter mentions the positive influencing variables that include opportunities, customer loyalty, the rise of business performance and the future trend forecasts. The research consists of demographic profiling of the retailers and analyzing their perceptions of the benefits of immersive commerce. This chapter describes the impacts of immersive commerce upon the experiential value, customer retention and competitive advantage employing pertinent statistical methods. The chapter concludes with the information that was given on the positive drivers to successful adoption.

Chapter 6 –Analysis of Negative Impact Factors influencing the Successful Implementation of Immersive Commerce.

The next chapter talks about the negative or constraining factors which involve the financial problems, technical problems, operational problems, infrastructural barriers, security problems, and the problem of customer inclusiveness. The chapter examines how far these problems and challenges have slowed down the pace, performance and adoption of immersive commerce by the Indian retailers. This discussion helps in making articulations of major areas of threat that are

important to be responded to using strategic response therefore counterbalancing the benefits articulated in Chapter 5.

Chapter 8 - Summary, Findings and Conclusion.

It is a summary of all the other chapters and the key findings that are present in the descriptive and inferential statistical analysis. The findings are made in terms of the objectives and hypotheses of the research. The chapter concludes with reiteration of the effect the study can have on the area of research and how the immersive commerce in Indian retail is known to the real world.

Chapter 9- Recommendations, Implications and Scope to Future Research.

The final chapter employs suggestions that can be used in the retailer, policymaker, and technology provider to increase the use of immersive commerce. It also gives theoretical and managerial implications of the findings. Finally, the chapter is limited and offers such space where the future research can be expanded thus leaving the field to be subject to further scholarly investigations.

CHAPTER 2

REVIEW OF LITERATURE

2.1 Introduction

The current study is related to the Opportunities and Challenges of implementing immersive commerce in Modern Indian retailing. To contribute the existing body of literature, the researcher conducted review of previous research in Immersive commerce and retail industry with a view to identify the research gaps. A literature review analysis has important role in the research, where it gives guidance and thoughts to the research to identify the research problems based on certain theoretical framework. The review of literature was organized in narrative and thematic methods. But new innovative methods are adopted in the research studies like, bibilometric analysis, meta analysis and systematic literature review. In this study, systematic literature review is used based on the PRISMA. To strengthen the existing literature, the relevant studies into four distinct topics.

1. Opportunities and Future Potentials
2. Challenges, Risks and Barriers
3. Customer Loyalty
4. Business Performance and Growth.

2.2 Source of Literature

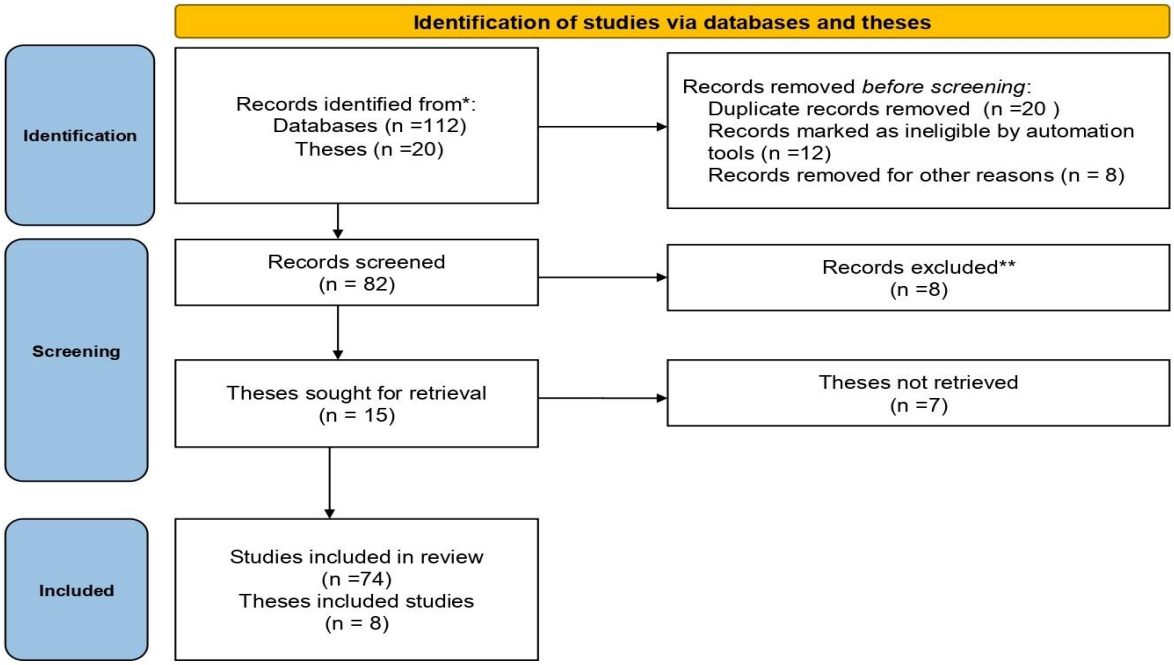
The PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) is the method adopted by the researcher to improve the transparency, accuracy and methodology quality to the research. It is a flow diagram that clearly understandable by the research in the process of identification, screening and inclusion of thesis and other records. By offering standardized guidance, PRISMA ensures that systematic reviews are conducted rigorously, reported comprehensively, and remain reproducible for future research (Page et al., 2021).

In the study, the researcher systematically assessed 112 databases and 20 theses aligned with immersive commerce. Inclusion exclusion criteria were applied and finalized 82 relevant studies. The studies were organized based on the various constructs adopted in the study.

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Figure 2.1

Flow diagram of PRISMA Literature Review



On the basis of segregations following reviews were identified and studied

Accenture (2023) examines the concept of immersive commerce as part of the metaverse continuum in the retail regarding the executive survey and the case based conference findings that can be found on influential platforms of the global retail technology. The results indicate that the immersive commerce positively impacts the experience dimension as it combines physical and online shops to achieve the interactive shopping and continuous shopping experiences. Accenture suggests that experiential enhancement brings about customer intrigue and a long term engagement and consequently immersive commerce is a grave experience-layer innovation but a transactional application.

Barta, Flavian, and Gurrea (2023) have managed to value the effects of the immersive commerce in Augmented Reality based retail applications. Based on their findings of an examination of data in customer surveys as they employ SEM they realize that immersive interactivity and vividness are highly significant in mental, emotional and behavioural captivation. The mediation between the immersive experience and the one of loyalty intention mediated by engagement is complete. This research proposes consumer participation in the center of the immersive commerce policies in retail as an outcome in an empirical manner (Journal of Retailing and Consumer Services).

Being the estimate of the impact of the immersive commerce on the work of the entering businesses, BCG (2023) considers the benchmarking data and the illustrations of the world market and the new one. The report arrives at the conclusion that immersive commerce would lead to better performance, i.e. high conversion rates, low returns on products and customer lifetime value. The monetary rewards will, however, be a process that will take a long time to be achieved and will be subject to strategies and operational preparedness. BCG considers immersive commerce as a long-term performance and not a short-run revenue generator.

On the one hand, Beck and Crie (2018) study the virtual fitting rooms as a type of immersive commerce in stores. Through conducting experiments of juxtaposing conventional e-commerce to VR-based fitting experiences, they find that the latter is much more advantageous in regard to the perceived enhancement of diagnosticity, hedonic value and faith in making a buying decision. The two value perceptions have a direct effect on the purchase intent and exploration. This is an empirical study, which justifies the findings on immersive commerce as one of the value-adding innovations of retailing to reduce the uncertainty and aid to augment the quality of decision-making (Journal of Retailing and Consumer Services).

Papagiannidis, Pantano, See-To, and Bourlakis (2017) discuss how immersive commerce may be applied to value addition in virtual stores through a survey and regression analysis. By their results, they show that the elements of immersion augment the perceived usefulness and pleasure that are the joint determinants of the intention to adopt immersive retail platforms. The specified paper places the immersive commerce at the junction of the

functional and experience value, which makes it even more applicable to the creation of the retail strategy (Computers in Human Behavior).

Caboni and Hagberg (2022) discuss the problem of immersive commerce because it is one of the digital innovations of physical bricks-and-mortar shopping. The authors believe in the use of the immersive technologies in redefining the relationship between the retailer and the consumer through qualitative case studies of the technology enabled retail format as well as in store immersive application. According to their results immersive commerce increases the experiential and store differentiation and in the process recreates the value of sales people. In conceptual sense, the paper has added to the knowledge of immersive commerce as a socio-technical innovation in retailing where service logic of retail is reconfigured instead of integrating new online functionality.

The article by Capgemini Research Institute (2022) provides the results of immersive commerce and customer experience in the retail sector on the premise of the survey of executive and customer panels in large markets. It is found in the report that the immersive experience generates a colossal impact in the measurements of engagement, including the dwell time, the interaction rate, and the brand recall. It has been said that retailers who employ immersive commerce are more emotionally and behaviorally involved compared to the scenario of utilizing the conventional digital mediums. Capgemini also locates the immersive commerce as a relationship enhancer of engagements that allows the establishment of relationships in the long-term and not instant transformation.

The article by Chakraborty and Biswal (2024) addresses the notion of immersive commerce to the metaverse of the retail communication layer as direct-to-avatar (D2A). They demonstrate that the arguments of diffusion-of-innovation, and empirical studies support that the metaverse-based branding dynamic and diffusion of the latter innovation facing the retail can be influenced by means of immersive communication. The article also leads to the further development of the concept of immersive commerce by not presupposing the perspective that immersive retail can be regarded not as a shopping interface (AR/VR store) but as a place of brand communication and adoption within the avatar-based environment that is changing. (ScienceDirect)

Chatterjee and Kar (2022) study the implementation of an immersive commerce in an Indian retail by applying an augmented Technology Acceptance Model. As the results of the survey of both the Indian online shoppers and the analysis of the PLS-SEM, the authors learn that the influence of the perceived ease of use, perceived usefulness, and enjoyment are significant in determining the intention to utilize the immersive retail applications. These are mediated in these by trust and reliability of a system. The research is practical as it placed the adoption of immersive commerce in context in the situation of the varying digital literacy in India.

The future of Indian retail is developed by Das and Mishra (2025) that discusses the opportunity of immersive commerce by analyzing the expectation of the consumer regarding AR, VR, and metaverse based shopping. The paper concludes that, based on the predictive modeling and the data of the survey, consumers hold the view that immersive commerce is a product to make the shopping process more transparent and engaging as opposed to one to be done away with the physical stores. The paper introduces the immersive commerce as a supplementary product of Indian retail and not as the disruptive alternative.

Das and Namboothiri (2023) research the usefulness of the visualization of products in the home decor and furniture retail business in Kerala. With an experimental design, which enabled the participating consumers to experience an interaction with the AR-based tools on spatial visualization, the study suggests that the concept of space, confidence, and satisfaction is considerably higher than going shopping with the assistance of the traditional catalogs. The perceived risk has reduced and the unwillingness to make has also been reported and this implies that the quality of the decisions made under high involvement types of retailing can be enhanced through immersive commerce in Kerala. This research gives a superior experiential enhancement and perceived value construct in Kerala retail.

In the Digital Consumer Trends report released by Deloitte (2022), the creation of value in the framework of immersive commerce in retail is discussed. As the secondary data analysis and the cross-country survey has revealed, the report makes the conclusion that the perceived value can be enhanced through the means of the immersive retail technologies, the clear perception of the products, the decrease of the uncertainties in the purchasing process, and the offering of the personalized experiences. Consumers would be more valued when the

application of immersive tools would provide them with confident purchases especially the high involvement purchases. Deloitte concludes that immersive commerce offers greater value to perceived value through approving decisions and not price benefits.

The article by Dwivedi et al. (2021) addresses the concept of immersive commerce in terms of increased digital transformation and novel technological environment. According to the authors, artificial intelligence, big data analytics, and individualization engines, which absorb the multidisciplinary approach, all turn into immersive commerce in the long run. The merger will be disposed to augment anticipation contacting retailing, customization and scale contact with clients. The article states the immersive commerce as a possible innovative capacity that renders the retailers dynamic to the consumer emerging demands.

The EY (2024) which evaluates the execution of immersive commerce in retail is based on industry surveys and on maturity models and was discussed in this paper. The report concludes that retailers that have already implemented immersive technologies are more brand differentiated, rated and perceived innovation on customer experience. The business performance is also indirect to the returns of engagement and loyalty performance. To reduce the risks of investment and benefits of performances, EY concentrates on the incremental implementation.

FICCI -EY (2023) shares the immersive commerce readiness of the Indian retail according to discussions and meetings that were held in the industry in the conferences. The small and medium retailers cannot meet the massive start up cost according to the report, lack of skilled man power and consumer awareness. However, immersive commerce is among the competitive future-worthiness initiatives, which retailers take into account. The report provides contribution of India-specific secondary evidence in regard to the hindrance and preparedness constructs of the immersive commerce study.

1 The study by Flavian, Ibanez-Sanchez, and Orus (2019) addresses the virtual reality (VR), augmented reality (AR), and mixed reality (MR) as the component of the immersive commerce in the retail space and discusses the impact of such tools on the development of the customer experience. The findings of the surveys conducted among the retail customers who have already experienced immersive retail applications and structural equations

modeling allow the researchers to conclude that the higher the degree of immersion, the higher the perceived presence and the pleasure and the degree of experiential value. It is a pleasant experience that has an impact in attitude towards the retailer and behavioural intentions like repeat purchase and recommendation. The article provides an excellent empirical data to validate the concept of immersive commerce as a better channel of providing retail customer experience which brings forth the strategic implication of the experience based retail differentiation (sciencedirect.com).

Gil-Lopez et al. (2023) compare the effectiveness of immersive commerce in shopping with mixed reality (MR) smart glasses and contrasts the findings with the comparison of the shopping behavior and decision patterns to the no-MR conditions of buying. They prove that MR change the course of the interaction (e.g. frequency/duration of interaction), decision time (preferably utilitarian purchases), the self-reported hedonic and utilitarian value, feelings of satisfaction and purchase intentions in a controlled consumer research dependent on implicit interaction behaviours and explicit questionnaire outcomes. Its publication is an expansion of the hypnotically consummate retail research which exposes that the value of MR is not fun, but it quantitatively and qualitatively alters the manner in which interaction and decision making is undertaken in the retail preference assignments process. (Frontiers)

Google Think Retail (2023) is a set of reflections, which incorporates the data of immersive shopping conferences and the data of platform use to analyze the actions of immersive shopping. This report revealed that AR as an immersive type of commerce is one of the best modes that has been employed to acquire buyers to it particularly the mobile-first consumers. Exploratory behaviour is better than greater interaction, repetitive interaction and more content consumer behaviour. The findings reveal that the immersive commerce was one of the major engagement media in mobile-based retail in India largely.

Grewal, Noble, Roggeveen, and Nordfelt (2020) discuss the potential of technology in retail and refer to the immersive commerce as one of the channels of the experience-based and performance-based approaches in retail. The authors suggest that the industry trends and empirical evidence would be acted by employing the immersive commerce to perform premium positioning, innovation based branding and the growing of customer relationships.

The monetary gains will be directly acquired as far as loyalty, involvement and decreased turnover are concerned. The article validates the status of immersive commerce as a long-term strategic investment and not a source of revenue in the short-term.

The strategic retail technology that is presented by Grewal, Roggeveen, and Nordfelt (2017) is the immersive commerce that defines the success of the tomorrow store. This assumption is made on the basis of their empirical studies regarding retail and state that the use of immersive technologies enables the enhancement of the conversion rates, reduction of the returns and competitive differentiation as a component of the retailer strategy. The balance of performance facilitated indirectly is also provided by greater quality of experiences and engagement. This performance capability is a long-run capability that is being mentioned in this article as opposed to a tool of short sale (Journal of Retailing).

The concept of the immersive commerce as the agent of a future performance in the retailing that Grewal, Roggeveen, and Sethuram (2022) use in the conceptual discussion of the paper is based on the empirical trends in the retailing. The authors are of the view that immersive commerce can distinguish and lower the price elasticity and up-end positioning strategies. In those cases, where the excellence of experience and emotional connectivity of the performer are at variance to the cost effectiveness, the benefits obtained are at an experience excellence level and emotional connectivity. The prevailing narrative of retail-performance that is being reflected in the current paper is one of the factors that contribute to immersive commerce being a business-performance strategy.

Gupta and Singh (2021) present the issue regarding the integration of the immersive commerce into the Indian organized retail, as they undertake a survey on the response of the consumers to the visualization of the product through augmented reality (AR) to the sort of fashions and lifestyle. As the survey conducted was among the urban Indian shoppers, the study findings with the help of the structural equation modeling show, the immersion is the most important thing that contributes to the perceived usefulness, fun and trust in the purchase decision. Such outcomes of experience have a positive impact on influencing the purchase decision and attitude towards retailer. Results are confirmed that the immersive commerce, in particular, is a very effective method in the setting of the Indian retail where the importance of the trial of physical products is traditionally viewed highly and the role of

the immersion as the tool which can be introduced to reproduce the experience in the virtual shop is considered.

According to Han, An, Han, and Lee (2020), the introduction of immersive commerce on VR shopping is a synthesis of the Technology Acceptance Model (TAM) and consumer flow theory where the aspect of VR in tele presence and time distortion is considered to be the origin of the immersive experience. They demonstrate on the case-by-case level that the hypothesis of the immersive psychological experience (telepresence/time distortion) can be applied to the modifying role of consumer responses to VR shopping, and the motivation why VR shopping is not yet an unquestionable success even in the circumstances of the technologically dazzling effect. The paper relocates the experience of immersion-based temporal and presence changes into the focus of the retail acceptance and attitude building within the VR to facilitate the conceptualisation of the immersive commerce concept. (IDEAS/RePEc)

The Heller et al. (2019) article in the context of frontline retail evaluates the effects of the AR-reduced visualization tools on the mental imagery and trust of the customers in the context of the immersive commerce experience. The use of the experimental design and the regression-based analysis, when addressing the retail service, indicates that the immersive commerce tools cost a lot to enhance the ability to visualize customers of the usage of the products, consequently, increasing the confidence and decreasing the perceived risk. The retailers can enjoy superior conversion rates and reduced post purchase dissatisfaction. Immersive commerce is also correlated with the retail decision making process and the study relates it to the cognitive facilitation process with the functional performance outcome extrapolated (sciencedirect.com).

Heller, Chylinski, de Ruyter, Mahr, and Keeling (2019) comment on the opportunities of the immersive commerce in the future to improve the mental imagery of the consumers in the process of shopping. The research discovered that they are able to use experimental evidence and in that event immersive visualization provides the customers with the capability of visualizing how they can utilize the product and hence feel more certain and content. In the opinion of testers, the more engaging are the technologies designed, the more they will be useful in the conditions of making complicated purchasing decisions and reducing the levels

of post-purchase dissatisfaction. This puts immersive commerce as the future solution in the higher quality of options and the reduced returns in retail.

Henningsson, Vaidyanathan, Archibald, et al. (2020) investigate the term immersive commerce as applied in the retail sector by conducting a case study of an AMCIS conference held research on an AR application by one of the shopping brands. According to the examination of the qualitative/field-oriented type, they suggest that the AR can reallocate the ownership of the touchpoints of the customer journey, and it can provide retailers with the opportunity to produce the situation when the customer experiences are developed. This witness of the conference introduces a managerial meaning of immersive commerce as a restructuring management of experience of the retail, which is more advanced than the application of a conversion machine. (AIS eLibrary)

Hilken et al. (2017) explain the strategic significance of immersive commerce in retail by the assessment of the immersive product offering in the digital retail services in the augmented reality. The research design, which was adopted by the authors is a mixed-method research design, which involves a sequence of controlled experiments and a survey based structural equation modeling that is used in the study of the effect of AR-based immersion on mental images, customer inspirations and customer engagement. The results show that customer inspiration brought about by the use of the immersive commerce is a powerful motivational factor, which, as a result, enhances engagement, and the urge to purchase. The benefits of retailers being a virtual commerce are not only on the way direct sales influences are affected but also on the cognitive and emotional impression to the customers. The article is pertinent to the literature of immersive commerce because it presents factual evidence to demonstrate that the experience immersion process is psychological amidst immersive retail technologies and value co-creation results (elsevier.com).

The article by Huang and Liao (2021) is dedicated to the problem of the immersive commerce adoption in AR-based retail application The stimulus-organism-response (S-O-R) model. The research, to which the results of the given survey are applied and explained with the assistance of the SEM, prove that the elements of the immersion of stimuli (interactivity and vividness) influence considerably the states of the organism implemented in the experienced pleasure and present and, consequently, the desire to buy. The results affirm the

intermediation of the effects of the immersive commerce by the emotions and experience responses. The article contributes to the theoretical background of immersive commerce by demonstrating that S-O-R processes can be applied to the retail environment based on empirical evidence.

The question regarding the immersive commerce reliability is analyzed by the interviewing of the executives conducted by IBM Institute of Business Value (2022) alongside the analysis of the threat the technology poses. The report states that stability of the systems employed, their latency, data and cybersecurity accurateness are the key points that predetermine the reliability of the immersive retail platforms. The retailers state that lack of use of the system or ill visualizations drive death of consumer confidence and use of the system. The integrity of the system is one of having sustainable implementation of immersive commerce in accordance with the guidelines that IBM provides.

Iyer, Banerjee, and Dutta (2023) article also dwells upon the issue of Indian furniture and home decor sale within the context of immersive commerce. The experiment that was performed with the assistance of the experimental exposure to the AR based product placement tools indicates that the level of spatial cognition, certainty and satisfaction is increased by the immersive visualization. It is these that make the reluctance to be considerably lower and the chances of purchase increase. The findings indicate that the immersive commerce is particularly convenient in the Indian retail markets that result in the consumption of a lot of space and money.

Jain, Schweiss, Bender and Werth (2021/2022) develop an immersive commerce artifact omniretail mixed-reality shopping assistant and experiment with it regarding a design science study and a user experiment using two head-mounted displays (HoloLens vs. HoloLens 2). They report that the judgments of the application of the technology, pleasure and security beliefs influence intention to use MR assistant significantly whereas intention influences the convenience, perceived quality of service, attitude towards the retailer, and word-of-month; they discover that there exist differences between the devices in the field of the perceived problems of privacy. Information discussed at this conference includes another retailer specific map of the MR shopping assistance design and demonstrates how the constructs of

the omnichannel experience can be transformed into action with the assistance of the immersive commerce. (Springer)

The article by Javornik (2016) is about the notion of immersive commerce in the retail setting regarding how the consumers respond to the application of augmented reality (AR) to an online and omnichannel retail setting. The paper talks about the implication of media properties of AR interactive, striking and spatial presence to consumer involvement and purchases behavior through experimental analysis of survey and structural modelling. These findings have revealed how immersive AR experiences are good in enhancing the perceived product diagnosticity and reducing the level of decision uncertainty that leads to the amplified purchase intention compared to the existing web interfaces. It has a very high effect on experience intensive retailing business such as the home furnishing and the fashion industry. It is also an empirical study which empirically proves preliminarily the connection between the attributes of immersive commerce and the quality of consumer decision in retailing thus immersion is a distinguished process which fills the online- offline gap in retailing (sciencedirect.com).

The concept of immersive commerce in line with the constructs of mental image and customer inspiration in retailing is explored by Jessen, Hilken, and Chylinski (2023). It is decided that the abundance of mental images and encouraging and involving is attributed to the immersive retail interfaces, which are supposed to be experimentally designed and within the context of SEM. Inspired customers are better willing to make purchases and exploration customers. The research in question is based on the immersive theory of commerce as it acknowledges a crucial psychological implication of being inspired to utilize the efficiency of immersive retail.

Applying the presented context to their study, Joseph and Varghese (2022) mention the immersive retail technologies in the context of the retailer in the shopping mall ecosystem in Kerala. Novel immersive trade, the virtual try-on, the interactive presentation of goods and the 3D effect is found in the qualitative interviews made with the retailing managers working in the big malls such as Lulu Mall and Centre Square Mall. The retailers argue that they get closer to their customers and the dwell time increases yet they are scared that they are left with the system, retail price and customer knowledge. Its findings constrained the Kerala

retail immersive commerce since the experience differentiation strategy was constrained in its operations and infrastructure constraint.

The sustainability of the Indian ecosystems in the retail immersive commerce is discussed as per Joseph and Varghese (25). This will be made known through mixed methods, i.e. the combination of the interview of the retailers and consumer survey, and will find that the implementation of immersive commerce will be successful under the circumstances of technological capacity, consumer preparedness and business strategy fits. The findings affirm the fact that the immersive commerce in India requires adopting with the slow approach and situational change so that it would succeed in the long-term perspective.

Kerala Startup Mission (2023) states that pilot projects in the AR and VR technologies in the retail-oriented startups are facilitated in the paradigm of the innovation ecosystem of the state. Based on the secondary level of assessment and startup analysis, the findings indicated that the customer engagement rates of immersive commerce application in fashion, jewellery and lifestyle retail pilot, entails interaction time and a follow-up. Rather, scalability (cost-wise, and accessibility of hardware and integration of systems) is enhanced. The use of immersive commerce is one of the new innovative retails that has been unequally disseminated in Kerala as stated in the report.

In the light of applying the concept of the immersive commerce to a retail location that will be planned to become a metaverse, Kim and Kim (2024) are concerned with the future prospects of the immersive commerce as a means of establishing the brand relations. On the findings of the survey and the SESM analysis, the authors draw a conclusion about the appearance of the perception of this sense of presence, engagement and emotional attachment because of the experience of experiencing the immersive environment. The authors posit that the metaverse retail spaces will be the third retail touchpoints, which will comprise of an in-depth experience, social interaction, and brand narration. The transactional outcome to the long-term development of a brand ecosystem increases the possibilities of immersive commerce in this piece of art.

The focus of Krishnan, Pillai, and Thomas (2022) in their article is the acceptance of mobile-based augmented reality shopping applications by the employees of the fashion retail in the

state of Kerala. Using a more extended version of the Technology Acceptance Model and survey results of the Kerala Smartphone users, the study arrives at conclusive results that the perception of fun and usefulness is closely related to intention to use immersive retail applications. The mediating factors are adoption intention through trust and system reliability, that is, the attractiveness to experience and technological reliability is the foundation of the effect of immersive commerce in Kerala. The article provides a bit of Kerala specific information also that associates immersive commerce with the consumer acceptance behaviour.

The authors comment on the concept of immersive commerce in the framework of the Indian mobile-based e-retailing with the application of the AR (Kumar, Dhingra, and Batra, 2022). The findings of the consumer survey that are achieved with the assistance of SEM assist them to learn that immersion has a significant positive effect on perceived value and pleasure that consequently influence the engagement and purchase intention. The article notes that smart phone awareness level in India promotes the use of mobile immersive commerce by younger clients. The paper presents a summary of the implementation of mobile AR as one of the scalable business immersive channel in Indian retail industry.

Li, Daugherty and Biocca (2002) analyze the effects of virtual experience in the framework of a retail-like setting by simulating the telepresence, as well as, the experience interaction. They show through the experiment that the greater the immersion the more they seem to experience the results and perceive the realness and this provides the best persuasion. These discoveries, even in the rudimentary virtual worlds, are informative to the immersive commerce conjecture as it is an empirical relationship between immersion and experience development in situations relating to retail (Journal of Interactive Marketing).

Loureiro, Guerreiro and Ali (2022) discuss the experience of immersion within the virtual shopping space based on the emotional and experience of the retail shop. The findings of the empirical modeling regarding the shape of a survey by the authors indicate that the immersion positively influences the satisfaction and behavior intentions with a significant increase in the delight and arousal feelings. According to the research paper, immersive commerce provides emotional based shopping experience that goes beyond the utilitarian

shopping intentions. The book also adds to the current literature on immersive commerce since it evokes the emotional processes of how immersion influences retail performance.

Marin-Diaz, Alarcon-del-Amo, and Mazzoli report (2023) discuss the concept of immersive commerce as an introduction to fashion retailing in the form of AR try-on. On analysis of the survey data previously analyzed with the help of SEM, it is concluded that, the immersion increases perceived fit accuracy and confidence and decreases perceived risk and return intention. Its results suggest that operational efficiency is enhanced through immersive commerce in an indirect manner that is, through enhancing pre-purchase examination. The study is pertinent in its contribution to the correlation between immersive commerce and reduction of retail risks and after sales.

McKinsey and Company (2023) evaluate the immersive commerce in the retail field as a digital value creation strategy in the background of industry standards and case syntheses. According to their report, the extent of the utilitarian and hedonic value grows with the usage of the immersive technologies allowing to look at the previews and taking part in the exploration of the product. The report shows that the sense of value is the best when the immersive commerce is incorporated in the customer experiences as part of the journeys. This supports the use of perceived value as an intermediary in the relationship between the outcome of immersive experience and the performance of retailers.

The article by McLean and Wilson (2019) addresses the idea of immersive commerce in mobile retail by referring to the interaction of the customer in the AR-based retail app. Based on the quantitative survey information that is processed with the help of SEM, the authors study the effects of the perceived usefulness, ease of use, fun, and immersion on the engagement and buy-intention. The results have revealed that the components of self-involvement have colossal influences on customer involvement that mediate perceptions and behavioural outcome to technology. The findings also show that the immersive commerce influences the performance of the retail positively indirectly because it establishes a long-term contact with the customer against the immediate realization of a transaction. The specified paper can also be connected to the current body of literature on the topic of the immersive retailing due to the empirical test of the involvement as the core mechanism through which the immersive commerce generates the values to the retailers (elsevier.com).

Mehta and Shah (2023) brush upon the problem of immersive business and interaction between customers in the Indian fashion retail. Their conclusions are calculated based on the assumption of the survey data of the customers who already tested AR try-on feature and SEM analysis and the findings indicate that the level of emotional and behavioral engagement can increase significantly with the help of the immersive interactivity and vividness. Engagement experience, in the sense of immersion is associated with the intention of loyalty. The paper has given immersive commerce as an engagement tool of the long run and not a promotion tool of short run in the Indian retail business.

Menon and Mathew (2024) investigate the theme of virtual trial on ornaments in the Kerala jewellery retail as the experience of immersive commerce. The research, performed on the basis of the customer survey and regression analysis, suggests that immersive visualization is the powerful media of impact on the sense of authenticity, trust and feelings involvement. The premium purchases are the ones where the customers are more assured and less nervous. The findings show that immersive commerce would work when this is implemented in the retail industries in Kerala where the level of emotional and financial involvement is very high.

According to Mishra and Singh (2025), the willingness of immersive commerce between retailers is based on how the management approaches the project of adopting AR and VR in the retail firms. The paper is conclusive that the visual strategic value, client preparedness, and infrastructural capability exert immeasurable influence on the adoption intention on proceeding with the survey information acquired between the retail manager and execution of the multivariate analysis. The retailers view immersive commerce as an outlay and not an income generator in the short-term outlook. The research is timely as it will incorporate strategic perspective of the retailer in the immersive commerce adoption literature.

Mishra, Mishra, Dubey and Dwivedi (2024) generalize the findings of immersive commerce through a meta-analysis of VR as a method of retailing and a mix of purchase and non-purchase intentions to buy is provided. Through quantifying the traces of the patterns they discover of how the patterns of VR retail spaces affect the intentions in processes relating to experience (e.g. immersive interaction and perceived playfulness/engagement), and by how the greater or lesser effects are produced in different environments. The meta-analytic study

is more conceptually founded on the notion of immersive commerce as the study introduces the second level of generalized evidence of the behavioral effect of VR retail, unlike in the one-study designs. (Pure KFUPM)

The application of the immersive commerce is regarded by Mkedder, Jain and Salunke (2024) with reference to the virtual reality (VR) stores theorizing the structural forces behind the intention to purchase the VR-stores. They use interpretive structural modeling (ISM) to show the hierarchies of the correlation of the determinants and in investigating the purchase intention; e-service quality proves to be the most common determinant in the VR-store scenario and enabling factors that enable VR retailing experience are interdependent. The article states that the actor of the immersive commerce performance within VR retail does not solely depend on the concept of novelty but re-designs the elements of service quality within the VR conditions. This proposal offers systematic and system-wide view of the hierarchy of determinants and management prioritization of the manner VR stores operate as a service to the prism of immersive trade beyond the perceptions of the user, under review by the retails. (IDEAS/RePEc)

To explore the appropriateness of the application of the augmented reality (AR) technology in the acceptance of the organised retail outlets in Kerala, Nair and Menon (2021) cognise how consumers respond to the utilisation of the shopping assistant in the apparel and lifestyle retail outlets. The paper has reached its conclusion due to a survey that has been carried out with Thiruvananthapuram and Kochi shoppers, the use of descriptive and inferential statistics, and the fact that the immersive visualization has monumental impact on the perception of the product and having fun shopping. AR-enhanced retail experiences make consumers feel more like the ones they can get in a brick-and-mortar store, which further gives them more confidence in their purchase. As indicated in the paper, the primary motivator in the adoption of immersive commerce by Kerala consumers is the obsession with experience and the sense of perceived value particularly to the urban retailers.

Nair and Pillai (2024) article outline the challenges of the roll-out of the immersive commerce to the brick and mortar retail in India. The paper is based on a cost barrier, infrastructure readiness, employee training and customer orientation through the thematic analysis of a qualitative interview of the retail managers. Nonetheless, despite all the

challenges, retailers assume that immersive commerce can be regarded as a possible form of differentiation and experience-based retailing. The value of this piece of work is the retailer limitation which has been played into the Indian immersive commerce experience.

Nikhashemi, Knight, Nusair, and Liat (2021) discuss a problem of immersive commerce as an effective and trustworthy experience in a smart retail setting. Their analysis has indicated that reliability of the systems, accuracy of the content and technological stability are strong influencing factors on the trust, satisfaction and repurchase intention based on the information of the survey, and mediation analysis. According to this article, the key factor that determines the success of immersive commerce is the degree of richness of experience or the consistency of the system which is the main factor of consideration in a retailing environment in the perception of perceived high risk (Journal of Retailing and Consumer Services).

Pantano and Pizzi (2020) are concerned with immersive commerce as the element of the smart retail ecosystem and they assume that the technological approach of immersive technologies will be the key to the retail innovation in the future. The conceptual theme of the research is based on the available research findings on the retail store layout, customer experiences, and service experiences redesigning which are elaborated on the basis of the empirical observations. The authors indicate that it is the coordination of the data-driven personalization and experience that passes through immersive commerce that is why it is stated that it has been one of the key facilitators of the intelligent and adaptable retail spaces. The possible change in business processes and customer experience in the retail business and immersive commerce is determined in this work.

The study by Pantano and Servidio (2012) is an empirical study of the use of immersive technologies in retail outlets based on the data of the survey and observation. Existence of immersive retailing settings, as their findings suggest, contributes to the rise in customer traffic, attractiveness of the store, and perceived innovativeness which positively impact the measures of the store performance. The research offers a tentative empirical supporting evidence on the immersive commerce as a factor of retail competitiveness.

In their analysis of the deployment of immersive commerce technologies in smart retailing environment, Pantano, Priporas, and Stylos (2022) make use of the empirical information of the technology-based retail stores. Their regression analysis shows that there is a positive effect of the immersive technologies on perceived innovativeness, store attractiveness, and experience value. These variables have a positive influence on the revisit intention and store loyalty. The article introduces immersive commerce as the main element of the intelligent retail programs that enhance the performance of the relational and the experiential retail.

Park and Yoo (2021) focus on the concept of immersive commerce in terms of the retail business environment by examining how consumers react to the concept of augmented reality (AR) product visualization upon conducting an online shopping activity. The research is anchored on the survey data of AR retail users and structural equation modeling, which confirms that immersion has a powerful positive impact on the sense of perceived diagnosticity, pleasure, and confidence in the decision making. This is what has positive implications on the experiential effects on purchase intention and attitude towards the retailer. The results affirm that the immersive commerce can enhance the performance of retailers indirectly, that is, by making sure that consumers are subjected to thinking processes, and not by making transactions simpler, solely. The present study contributes to the immersive theory of commerce since it demonstrates empirically the relation between immersion and quality of decision in the retailing business.

The article by Patel, Joshi and Trivedi (2023) is about the development of the online Indian retail immersive commerce trust. Upon computing a survey data with the help of the mediation analysis, the authors discover that accuracy of the system, its realism, and its data security are significant predictors of trust in immersive retail platforms. The effect of trust on the reuse intention and satisfaction is positive. The results show that the Indian consumers are extremely sensitive to reliability and privacy in which reliability of the system is one of the success factors that affect the adoption of the immersive commerce.

The paper by Pizzi, Scarpi, Pantano, and Dennis (2022) explores the problem of authorization of the immersive commerce in the retail stores equipped with the AR and VR technology. They rely on survey data and multivariate analysis to confirm their findings that confirm that the perceived usefulness, enjoyment, and trust factors are the noteworthy ones

that predetermine the extent to which consumers are ready to use the immersive retail technologies. Behavioral intention and immersion by trust have a partial mediation. The findings point to the fact that the utility of immersive commerce to the retailing business necessitates a trade-off between the experience novelty and its reliability and realism.

Poushneh and Vasquez-Parraga (2017) focus their interest on empirical studies of the application of the immersive commerce to the retail environment as the application of the augmented reality to the retail environment on-site and online. The conducted survey among the customers in the retail outlets and the subsequent analysis of the data collected with the help of regression and mediation analysis confirms the presentation of the two factors of customer satisfaction and purchase intention that are oriented at the use of AR as immersive experiences. The findings suggest that customer satisfaction, introduction of enjoyment, information, and perceived control of the shopping experience in the immersive commerce have a markedly high positive impact. The circulation of the existence of satisfaction to some extent between the immersion and purchase intention is mediated by satisfaction, implying that the immersive commerce is reacted to by creating experiences and not necessarily by the functional advantage. The research paper at hand is also contributing to the literature within the retail-related immersive commerce literature since it makes customer satisfaction a core product of the immersive retail.

The article by PwC (2022) takes into account the introduction of immersive commerce at the global level and in the retailing industry specifically and outlines the response of the retailers and consumers in such states as India. The development of the report is premised on the analytics of the survey conducted on the mass scale and the forecasting of the situation that will lead to the conclusion that immersive technologies (AR and VR) may become very useful to the abundance of the experience as they will enable people to feel virtual try-ons, immersive narrative, and visualize products. The retailers that applied immersive commerce state that they are more emotionally connected to a consumer and that they are more experience-differentiated. The experiential uplift is believed to be the primary strategic push leading to the application of experience based segment of the retailing as proposed in the report.

The article by Rajan and Suresh (2023) provides the comparison of the readiness of immersive commerce between small and medium businesses (SMEs) in Kerala. The paper concludes that the independent retailers possess the information on the experiential advantages and involvement and benefits of the immersive commerce but because of the financial limitation and technical expertise and awareness, they are not able to embrace the technology according to the survey outcomes of independent retailers in Ernakulam, Thrissur and Kozhikode and the factor analysis. It further brings out the point that immersive commerce in Kerala is seen as a strategic opportunity that may take a long term where it does not have to even be in operation.

Raman and Aithal (2022) believe in the importance of the Indian retail companies in the framework of the immersive commerce preparedness through the perspective of the manner in which the managers perceive the application of the AR and VR. The discussion is based on the survey report of the two Tier I and Tier II cities according to the location of the retail managers, factor based analysis, which contributes to the conclusion that the perceived strategic value, customer engagement potential, and competitive pressure are the drivers contributing to the adoption of the immersive commerce. High start up cost and limitation of infrastructure are the most vital obstacles. The article puts the immersive commerce within India as a well-positioned and strategically-adopted retailing innovation.

Rauschnabel, Babin, tom Dieck, Krey and Jung (2022) speculate about the immersive business in the future metaverse and extended reality (XR) world. The development conceptualization employed by the authors is based on the earliest empirical observations that immersive commerce that will replace the product visualization to the long term virtual shopping, avatars-based shopping, and social commerce. The article mentions that it can expand in the future with the assistance of the community-based shopping experiences and brand worlds. One of the disruptive innovations that are introduced in this paper in the redesign of the retail experience and social interaction is the immersive commerce.

In their article, Rauschnabel, Felix, and Hinsch (2019) examine branding the immersive commerce of mobile AR retail apps. According to the facts revealed in the research, they show that the simulated AR experiences are motivation, more involving, and performance-

based on the brand. The element of the immersive commerce can bring the power of the retailer that transcends the buying and selling in that it can bring about the sense of exploration, a sense of wonder as it has been established in this paper.

In Reddy, Mohan, and Rao (2024), the effects of immersive commerce and business performance of the organization within the Indian organized retail chain are explored. Based on the data collected after the analysis of the retail executives and the regression equation, the researchers find out that the implementation of the immersive-commerce positively influences the number of customers in the store, time spent in the store and brand innovativeness. Its returns to the financial performance are indirect and slow therefore supporting the opinion that the situation where immersive commerce is long-term strategic investment in India.

Sanaei (2024) gives a conceptual model, and it offers how the immersion as a constituent of the AR shopping applications mediated both the parts of the customer satisfaction and the attitude to buying the item by the immersion itself. It is anticipated that the model will be advantageous to the firms in terms of priorities as they will be prioritised on matters of AR design since it is pertinent to the augmentation of experiential satisfaction. The model itself is theoretical; nevertheless, in the empirical sphere it remains to be supported by the work of AR, and other studies of the retail stores are still waiting to be served by the structural equation modeling in the real life retailing in the future. The framework will serve as a guiding principle in decision-making on whether to invest in AR and to the practitioners, which areas are to be achieved or enable the desired effect of contentment and sales volume in utilizing technology will be the most determinative.

The article by Sarkar, Das and Chattopadhyay (2021) talks about the Indian omnichannel retail to immersive commerce by assessing the use of AR-based virtual try-ons. To achieve the findings that immersive tools evoke the sense that the risk is lesser and the decision is much more satisfactory, the authors apply the instruments of experiment design and regression analysis to draw the sought-after results. The power is higher when it comes to clothing and accessories that are extremely insecure when it comes to fitting and looking.

The research is practical as it explains how the concept of immersive commerce can help to cope with the issue of trust and risk, which most Indian online shoppers have.

According to the results of the trust and engagement scales, Scholz and Smith (2016) examine the consumer response to the use of immersive design in retail stores. They introduce the outcomes of the qualitative interviews and scenario-based testing that indicate that it is the discrepancy between the virtual models and the actual product that creates the disruption in the trust to immersive commerce systems. Their conclusion supports the notion of reliability and realism in order to ascertain the consumer confidence in the immersive retail adoption.

The issues of inclusiveness and accessibility of the implementation of the immersive commerce in Kerala retail establishments are the concerned issues addressed by Shaji and Paul (2024). Referring to the information of the consumer survey provided according to the age and digital literacy, the research concludes that the older consumer and the rural consumer is less predisposed to the acceptance of the immersive retail technologies. The authors give the prospect of hybrid types of retail that will integrate the immersive qualities with the service that will be traditional to make it inclusiveness. This work can be used because it clarifies consumer associated obstacles in Kerala retailing setting that is socially diverse.

According to Shankar, Kalyanam, Setia, Golmohammadi, Douglass, and Hennessey (2021), the concept of immersive commerce is included in omnichannel retail strategy. The conceptual development that the authors rely on is the industry evidence that the immersive technologies can combine both the physical and digital touchpoints and provide seamless customer experiences. The standardization in the experience of the immersive commerce can increase across the channels and boost customer loyalty and satisfaction. The contribution to this work is tactical since it presents the immersive commerce as an omnichannel capability and not a technology.

The immersive commerce inclusiveness issue in the Indian retail context is taken into account in the article by Sharma and Kulkarni (2024). According to the surveys of consumers

and the analysis of subgroups, the researchers draw generalizations that the less digitally literate older groups are not as receptive to immersive retail technologies. The authors highlight the necessity of having hybrid retail strategies and immersive and traditional interfaces. It is possible to state that the research can be evaluated as valuable in terms of emphasizing inclusiveness as an important parameter in the Indian retailing market that is highly differentiated.

Thomas and George (2025) focus on the role of the immersive commerce on the attitude towards the retail brands in Kerala. It is determined that, based on the survey data presented on the customers who underwent the experience of an AR-enabled retail space with the assistance of SEM, immersive experience has a high impact on brand innovativeness and modernity perceptions that, in turn, are positively connected to the intention to be loyal. The indirect and mediator effects of the business performance are interaction and satisfaction. The paper promotes immersive commerce as an able branding and positioning site in retailing in Kerala.

UNCTAD (2022) addresses the big picture of the digital revolution of the retail in developing economies through the immersive commerce. The report cites the presence of infrastructure, digital literacy and affordability as key challenges of integrating immersive commerce into a market like India by use of secondary data, as well as secondary policy analysis. The results indicate the lack of inclusiveness that the immersive commerce would be able to introduce to the city and the digitally intelligent population unless it is diluted somehow.

Vaidyanathan and Henningsson (2022) seek to answer the question of how the retailers include AR services in such a way that they provide more fulfilling customer experiences since there is no connection between the good lab outcomes and the milder commercial effects. On the applied research design, which is based on service design logic, they postulate and demonstrate design principles of AR service design setups that optimize experiences at the retail outlets to customers. Their contribution makes immersive commerce not just the functionality of the AR, but the service platform that ought to be specifically designed in the customer journey touchpoints, which makes the concept more feasible to the retailers, who would rather realize immersive commerce in the scalable form.

Verhulst, Van den Poel, and Snoeck (2024) pay attention to the reliability of AR-based retail services. Using mixed method which entails the application of both surveys and system-performance assessment, it was found out that system latency, accuracy, and stability would strongly influence trust and continued use intention. The paper also evidences that the effectiveness of immersive commerce can be restricted by the consistency of technology, which explains the focus on the operational capability in the context of embracing immersive retail.

Verma and Sinha (2024) believe in the place of immersive commerce in e- commerce in India, which utilizes VR-based product features and product demonstrations. Concluding on the results of the comparison of VR demos and traditional displays on an experimental basis, they report that immersive demonstrations lead to a better comprehension of products, engagement, and confidence in purchases. It is revealed in the paper that immersive commerce can increase salesperson-assisted selling rather than replacing human interaction in Indian retail.

Wedel, Bigne, and Zhang (2020) investigate immersive commerce interfaces at retail level on the basis of reviewing and synthesizing the data on virtual reality (VR) and augmented reality (AR) retailing space. They demonstrate that in an experimental and conceptual synthesis process, which is situated on the consumer information processing theory, the immersive retail technologies have the potential to enhance vividness, interactivity, and presence that redefine consumer behaviour towards, assessment and recollection of products. It is concluded that immersive commerce is able to contribute to better experiential processing and can be reduced in complex choices concerning purchases. Theoretically, this work of art places the immersive commerce as a paradigm shift in the retail interfaces which transform consumer decision-making processes and does not provide a digital touch to their beauty.

World Economic Forum (WEF, 2023) notes that the risks of immersive retail commerce are addressed within the sphere of digital trust and technology governance, which is addressed in the forums on a global scale. The report reveals privacy, data protection, and transparency in the algorithms as among the issues that have to be trusted in the immersive retail experiences based on the reviews of the policies and consultations with industry. The findings affirm the

importance of proper governance structures in order to assist that will result in proper and ethical implementation of immersive commerce.

Listing the empirical literature on VR shopping, Xi and Hamari (2021) identify immersive commerce as one of the key elements in the value-creating process of the future of retailing. As a result of a systematic literature review, the authors affirm that immersive commerce will advance as the novelty-based applications to the standardized retail tools in supporting the confidence to make decisions, engagement and perceived value. The article emphasizes the fact that as technology becomes more accessible, immersive commerce will no longer be a niche segment and grow to become a significant part of the retail mainstream. The authors are interested in the prospect of growth in terms of scalability, integrating platforms, as well as the reduction in the hardware constraint.

Yang and Lin (2024) study digital retail immersive commerce by conducting an experiment on the impact of AR interactivity and vividness on telepresence and downstream purchase-related outcomes. Depending on an online survey design and the causality path tests, they find that the more interactive and vivid, the more the telepresence and the more effective the media are, the more pleasureable the media, and the more consumers are engaged and interested in making purchases in AR shopping set-ups. Their result makes telepresence a core psychological process that transforms the properties of immersiveness in an interface into retail-effectiveness. The article supports the immersive commerce theory on a conceptual level by empirically linking the AR design characteristics to engagement and conversion performance through telepresence in a contemporary retail store in the digital-economy.

In their research on the impact of the spatial presence on the consumer attitude, Yim, Chu, and Sauer (2022) compare immersive commerce in VR retail space. On the basis of the experiment and regression findings, they find that the more immersion, the more presence of space that improves enjoyment and purchase intention. However, a high level of complexity is unproductive and the best levels of immersion. The next step in the development of this research is the discovery of conditions of a successful immersive commerce in retail sector.

Yoo (2023) examines the immersive commerce concept, which is discussed in the context of mobile retail AR, simulates the influence of perceived media richness and interactivity affecting telepresence, and the effects of telepresence on utilitarian/hedonic value and behavioral intentions, and mediates the moderating impact of task complexity. The research through hypothesis testing using surveys conducted on mobile users concludes that AR based telepresence and experiential values significantly affect behavioral intentions and relationship varies in strength according to perceived task complexity. The article develops the immersive commerce retail theory by showing that the advantages of immersive experiences are conditional: the immersive value creation is increased when the shopping task is regarded as less complex (or when AR reduces the complex enough).

2.3 Research Gap

The comprehensive literature review suggests that the immersive commerce has emerged as an experimental retail interface to a strategically pertinent phenomenon, which has been influencing customer experiences, interaction, and long-term retail performance. The fact that the application of immersive technologies (AR, VR, MR, metaverse-enabled retail space) enhances the experiential performance in the form of enjoyment, presence, mental imagery, inspiration, engagement, perceived value, and confidence in the decision is always certain in previous researches. Empirical findings at the Indian and the global level confirm that these experiential processes indirectly produce positive behavioral outcomes such as the purchase intention, loyalty intention, brand attachment, perceived risk reduction and reduced turnover intentions. Immersive commerce as a long-term strategic investment rather than a revenue-generating tool is also backed up by the industry reports. The literature has, however, become thick, however, there are a number of substantial gaps that remain unfilled particularly in regard to holistic application, retailer-oriented perspectives, and local specificity in new markets like India.

Firstly, there is an immense gap in terms of trying to include both positive and negative determinants in a single empirical model. The large bulk of the literature is greatly skewed in terms of addressing all the positive experiential and engagement-related outcomes of immersive commerce, such as experiential enhancement, perceived value, inspiration, and engagement, and in regard to challenges, risks, and barriers as peripheral or descriptive observation. The financial

constraints, infrastructural constraints, skills constraints, system reliability, privacy and inclusivity are reported in the industry and are reported in qualitative studies but the negative facts are rarely integrated with opportunity constructs in a single analytical facility. Thus, the literature lacks a coherent explanatory framework that can represent the nature of the interplay between opportunities and constraints in establishing the success of the implementation of immersive commerce in retail.

Second, although the current research on consumer-side adoption and consumer behavioral intention has been extensively conducted with the framework of various models applied such as TAM, UTAUT, S-O-R, flow theory and telepresence models, minimal focus has been given to the strategic and operational perspective of the retailer. Most of the empirical studies rely on the surveys and laboratory tests made by the consumers, but not much research has an empirical value of the perceptions of the retailers on the immersive commerce on strategic value, riskiness of investment, preparedness of operation and long-term performance consequences. The Indian retailing environment particularly when the cost sensitivity and the infrastructural variability and the capacity of the organization to embrace a particular retailer are key determinants of the adoption decisions; there is a clear need of retailer-based empirical research other than consumer acceptance.

Third, there is no empirical clarity on the ways immersive commerce can be mediated on the outcomes of business performance despite its strategic positioning as long-term performance enabler. There is a great deal of unanimity in the available literature that the finances are mediated and indirectly by means of the variables of experience and relationship which cover engagement, satisfaction, loyalty, and the perception of the brand. Still, little empirical research empirically quantifies these relationships with the use of elaborate models during the period of relates the opportunities of immersive commerce, consumer assimilation systems and business performance indicators to what appears to be an ultimate outcome such as the execution of successful implementation. As a result, the causal model considering the manner through which the idea of immersive commerce can be applied to describe organizational success is incomplete.

Fourth, the context is capable of generating gaps in case the study of immersive commerce is confined to Indian and Kerala. The existing studies are limited to one of the stakeholders

(fashion, furniture, jewellery) or a sub-group (however, the research in India and Kerala make useful insights into consumer acceptance of AR-based visualization, virtual try-ons, and acceptance). The Indian retail structure lacks a coherent study of opportunities, challenges, consumer acceptance, performance implications, future potential and risks/barriers, which are conducted on a large scale and integrative basis. On local research among Kerala, further structural, inclusiveness-related, and awareness-related barriers are also listed, though these are hardly combined into more sophisticated structural models of immersive commerce adoption and implementation.

Fifth, despite the increasing debate on the potentials of the future i.e. metaverse retailing, avatars shopping and the immersive brand space, empirical research remains in its infancy in connecting the future oriented constructs with the realities of current implementation. The majority of the studies address the concept of the future potential in an abstract manner, with no real effort to empirically research the role of expectations regarding the potential to innovate, growth potential and brand image in shaping the current usage and strategic decision-making of the retailers. That is a time gap between the visionary projections of immersive commerce and the more mundane application of the particular concept in the retail context.

Finally and yet importantly, even though some of the studies acknowledge the importance of system reliability, trust, privacy and inclusiveness, they are often presented separately. It lacks empirical research that includes technological reliability, security risk, operational risk, and consumer inclusiveness barrier as structural constraints that either have a direct or indirect impact on the success of immersive commerce. The distance is particularly relevant to the emerging economies, in which, based on the issues of digital disparities, availability, and trust, the consequences of technology may be significantly mediated.

In general, the existing literature lacks an empirical model grounded on opportunities, challenges, consumer acceptance, business performance, future potential, and risks/barriers through the prism of retailers to explain why the introduction of immersive commerce into the Indian retail is successful. To address this gap, the analysis should have an extensive research approach that captures all the enabling and limiting factors in one mode of analysis and might

result in the inclusion of the theoretical literature in immersive commerce and the practical application of strategic decision-making in retailing in the new market.

CHAPTER 3

IMMERSIVE COMMERCE IN INDIAN RETAIL – A THEORETICAL FRAMEWORK

3.1 Introduction

The study discuss about the Immersive Commerce strategy in the contemporary Indian retailing that aims to explore the favourable and unfavourable aspects of influence of Immersive Commerce Implementation. The theoretical foundation is significant in increasing the analysis on opportunities and challenges and hence analyze the positive impact factor and negative impact factors relative to Immersive Commerce adoption.

This chapter creates a theoretical foundation to discuss the opportunities and pitfalls of the implementation of the immersive commerce program in the contemporary Indian retail. According to the existing literature of technology adoption model diffusion of innovation theory, consumer behavior models, theories of strategic management and conclusions made by organizational studies the framework can offer a multidimensional approach, based on which the dynamics at work can be viewed. Integrating these insights, the framework assists in developing an explanation of how the retailers make their decisions, how consumers react, how the immersive technologies generate strategic value, and how the contextual factors might impact the implementation outcomes. In so doing, it grounds the analysis agenda of the study on an interdisciplinary basis.

The chapter conceptualizes the implementation of immersive commerce as an outcome of response of positive and negative factors of impact through the synthesis of these theoretical perspectives. Positive factors are experience improvement, customer interaction, product visualization, perceived value, innovation and competitive differentiation know-how and negative factors are financial limitations, complexity of technology, infrastructure constraint, perceived risk, resistance to change, and skill gaps. These aspects are also put into a broader Indian retail ecosystem that is characterized by the demographical diversity, rapid urbanization,

the development of tier-II and tier-III cities, the digital initiatives by governments, and the acceleration of digital retail by the COVID-19 crisis.

Thus, the chapter does not merely provide the conceptual meaning, the technological foundation and the strategic implication of immersive commerce, but also provides a powerful theoretical framework on which the dynamics of its adoption in Indian retail may be analyzed. The hypothetical framework that can be developed on the ground of the current paper helps the empirical research in determining the dependence between the opportunities, challenges, and the effective application of immersive commerce that can improve the analysing rigour and explanatory strength of the research.

3.3 Concept of Immersive Commerce

A paradigm shift has occurred in the retail industry that has literally changed the product interaction by consumers, their brand preference and shopping condition. The inability of the traditional e-commerce to recreate the sensational richness and feel of the traditional brick-and-mortar retail store has been condemned, with the majority of the features being little more than a simple extension of the two-dimensional interface, frozen product view and textual detailing. Due to these failures, immersive commerce is now a new breed of the retail paradigm, which integrates immersive technologies such as augmented reality (AR), virtual reality (VR), mixed reality (MR), extended reality (XR), artificial intelligence (AI) and spatial computing to create interactive and engaging experiences related to shopping. Immersive commerce enables people to view, touch, feel objects in digitally enhanced settings thereby bridging the gap between online and physical retailing format (Flavián et al., 2019; Javornik, 2016).

Immersive commerce does not enhance the old-fashioned e-commerce, but re-patterns it as experience based retailing. The retailers can have a more significant influence on them by incorporating the immersive technologies into the consumer decision making process with the aim of improving their perceptions, emotions, engagement, and purchase intentions. It is an experience-based orientation that is aligned with the general evolution of the retail into the nature of the experiential marketing, omnichannel, and customer-oriented business models (Pine and Gilmore, 1999; Verhoef et al., 2009). As the movement toward more customized consumer

demands continues, becoming increasingly interactive and convenient, immersive commerce is a powerful instrument to retailer to introduce value creation and competitive advantage.

3.2.1 Immersive Commerce - Definition

Combinations of immersive digital technology and commercial functions are the immersive commerce to create interactive, engaging, and sensory shopping experiences to imitate or create real-world shopping experiences. It further makes products and services virtually or physically augmented available to consumers to the point where consumers can engage and learn more about them before making purchasing decisions (Hilken et al., 2017). Unlike traditional e-commerce, immersive commerce dwells upon the concept of presence, immersion, and the aspect of interactivity that are critical psychological states that define consumer behavior in an online environment.

Conceptually, one can determine immersive commerce as a digitally mediated commerce, where the customers can experience digitally simulated or augmented retail spaces permitting them to work with products, brands, and other customers in an experience fashion (Dwivedi et al., 2022). It has defined three basic dimensions, i.e. (i) immersive technologies, (ii) experience interaction and (iii) value co-creation between retailers and consumers. The immersive commerce as such is thus beyond the transactional exchange, which involves emotional, cognitive and sensory dimensions of shopping.

The scholars presume that immersive commerce turns consumers into active participants of the shopping experience as opposed to being passive receivers of information (Javornik, 2016). The consumers are able to experiment and customize their shopping experience with AR try-ons, virtual showrooms, 3D product visualization, retail spaces designed in the metaverse, and so on. This participatory attribute contributes to the perceived control, pleasure and confidence all of which are highly significant determinants of consumer acceptance and satisfaction.

3.2.2 E-Commerce to Immersive Commerce

The history of the evolution of immersive commerce can be regarded as the series of evolution, manifested by online shopping to the e-commerce and then the omnichannel and immersive

retailing. The early e-commerce frameworks were all convenient, price-equal and access, but had no sensuous appeal and immersion. As the digital technologies increased, retailers began to add multimedia, interactive, and customization functionality to improve the online shopping experience (Verhoff et al., 2015).

Immersive technologies entering the scene became a radical change in this development. The AR applications allowed the consumers to view the goods in the real environment such as the location of virtual furniture in their homes or trying on clothes and makeup virtually. These functions were further extended with VR technologies, which gave the possibility to have fully immersive virtual stores and showrooms where the consumers could walkaround, browse and interact with the products as though they were at the stores (Flavián et al., 2019). MR and XR technologies unite the physical and digital that create hybrid retailing experiences that make the retailing more actual and enjoyable.

This action can be regarded as a broader process where experiential consumption can be applied to the situation because the value is not just in the possession of new goods but also experience in shopping. Immersive commerce, then, is an overlap of digital technology, experience marketing and strategic retail transformation.

3.2.3 Immersive Commerce-enablement Technologies.

The synergy of contemporary digital technologies that work in conjunction to create interactive and engaging shop experiences stimulates immersive commerce.

Augmented Reality (AR)

Augmented Reality (AR) is the idea of adding virtual elements of images, animations, and informational overlay to the physical space in the real-time through smartphones, tablets, smart glasses, or physical in-store digital screens. AR can be applied in retail whereby the distance between physical and e-commerce can be lessened by letting the consumer view the products in their natural setting. These retail applications are generally the virtual try on of clothing, cosmetics, eyewear, and footwear; product visualization, such as furniture and home furnishings;

and interactive product demonstrations where more information about one product, or about product usage or product comparison can be seen.

AR has a critical role of reducing the perceived purchase risk by ensuring higher knowledge about the product and has the ability of ruminating realistically about the product prior to purchasing. In the empirical study, the researchers found out that AR has a positive impact on the perceived usefulness, the hedonic value, and the confidence in the decision, which is positively correlated with customer engagement, attitude, and purchase intention (Javornik, 2016; Hilken et al., 2017). AR is applicable in both the organized and unorganized retail set ups since it is particularly applicable in the Indian retail environment due to its accessibility through smart phones.

Virtual Reality (VR)

The concept of Virtual Reality (VR) is linked to the creation of the fully immersive and computer-generated spaces that substitute the real reality and allow the users to navigate a fictional retail space with the help of VR goggles or immersive screens. VR will assist the consumers to move around in their virtual stores, see 3D objects in various positions and connect to brand narratives in the most engaging manner. The VR unlike the AR which added real world is a complete experience simulator that recreates or reinvents the physical retail space.

The VR can be especially useful within the retailing industry where high-involvement and experience products such as real estate, automobiles, tourism, fashion and luxury goods are involved. VR commerce allows the consumer to touch the products under the real-life circumstances such as trying the car, seeing the house or having a virtual fashion show. Research shows that VR leads to better emotional attachment, perceived presence, and value of experience that leads to a better brand remembrance and an intention to purchase (Flavián et al., 2019). VR is strategic means of differentiation, particularly in flagship stores, malls and experiential marketing campaign to the Indian retailers.

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Mixed Reality (MR) and Extended Reality (XR)

Mixed Reality (MR) and Extended Reality (XR) are the improved immersive technologies that unite the peculiarities of both AR and VR to allow an opportunity to communicate in both directions with the real and virtual worlds all the time. Mixed Reality supports digital objects to interact directly into the real world in real time, with XR adopted as an umbrella term to define AR, VR, and MR technologies. The technologies provide the possibility to have hybrid shopping experience that obviously integrates online and offline retailing.

Some uses of MR and XR in the retail store setting are smart mirrors, interactive digital signage, immersive showrooms and virtual sales assistant. These applications will enhance customer interaction as customers will be able to customise their interactions, have personalised product suggestions and have brand stories that are interactive. MR and XR make it also possible to use omnichannel retail solutions that would connect the real-life store experiences with the digital spaces. Their application improves experiential improvement, product positioning and perceived innovativeness because the opportunity constructions of the immersive commerce implementation.

Information analytics and Artificial Intelligence (AI)

The smart of immersive commerce is Artificial Intelligence (AI), which can be applied to customize the experience, predict analytics and dynamically-delivered content in immersive spaces in real-time. The consumer behavior is studied, the browsing processes and emotional responses are evaluated and the data of the interaction that is delivered or generated by the AR, VR, and XR technologies is determined with the help of AI-based algorithms. This enables the retailers to offer personal recommendations on the products, price changes, virtual assistants, and customized immersive experience.

The AI-powered data analytics will enhance the strategic decision-making of retailers as it will provide them with the information related to the preferences of the customers, the engagement level, and conversion paths. Immersive commerce also applies AI to support natural language processing, computer vision, face recognition, and sentiment analysis and make interactions at immersive commerce more natural and responsive. It has been demonstrated in literature that AI

would increase the perceived value, reliability, and customer satisfaction in the digital commerce environment by a significant margin (Dwivedi et al., 2022). An Indian retail setting that has been facilitated by AI to offer immersive commerce aids in scale, customer segmentation, and consistent competitive advantage.

Metaverse Commerce

Metaverse commerce refers to retail commerce that occurs in enduring, communal, and immersive virtual worlds in which consumers interact with each other through digital avatars. These spaces reproduce or broaden the physical retailing settings and enable the consumers to experience virtual stores, attend product promotions, get a social experience, and purchase both physical and virtual commodities. Metaverse commerce is a meeting of technologies: VR, AR, blockchain, AI, and others to create a socially connected and connected shopping space. It is particularly applicable to the retail industry, when it comes to enhancing the brand engagements, experiences, and consumption as a community, where fashion, luxury, and lifestyle brands are more interested in the long-term immersion of consumers instead of just a single purchase.

3D Visualization

The term 3D visualization is used to refer to presentation of a product in interactive 3D models which can be rotated, zoomed and viewed in different ways by the consumers. This technology boosts product information since it gives realistic images of products features, sizes, and beauty of products. The 3D imagery in immersive commerce reduces the information asymmetry and perceived risk hence increasing the consumer confidence and intention to purchase. The ability to provide high quality and transparent online and omnichannel shopping would aid the retailers in product positioning and brand loyalty.

Virtual Try-and-Buy

Virtual try-and-buy allows the customer to practically test a product prior to making a purchase with the help of immersive technology, such as AR, VR, and AI. This is most commonly used with respect to clothing, cosmetics, eyewear, footwear and accessories where a customer can view how the product would appear or would fit the customer in real time. Virtual try-and-buy

enjoys greater perceived usefulness and pleasure and reduces the uncertainty and repudiation of the product significantly. It serves well in the Indian retail market to boost satisfaction, confidence and application of immersive commerce solutions by customers.

In-store Immersive Commerce

Physical retail space is the in-store immersive commerce that is the integration of the immersive technologies in the retail space, enhancing the shopping experience. Smart mirrors, interactive displays, product information with AR and VR experience areas are all the technologies that enables it to reinvent a common store into a more entertaining experience. Through such interactions, the level of engagement of the customer, the length of engagement and attachment on the brand is increased. The in-store immersive commerce may assist retailers regarding the integration of omnichannels, particularly with aligning the physical touchpoint with the digital experience, which will add more experiential and competitive differentiation.

Social Immersive Commerce

Social immersive commerce involves both immersive technology and social interaction to enable customers to shop cooperatively through either virtual or augmented space. Such kind of trade will allow users to communicate with friends, influencers or brand representatives in real time during product discovery. Some of the features that facilitate trust, entertainment and peer influence are live immersive shopping, virtual showrooms, and socializing with the help of the avatars. The social immersive trade will be aligned with the new consumer behavior in which shopping is currently being considered as a communal and experience-oriented experience as opposed to an individual one.

Table 3.1

Types of Immersive Commerce and its Key benefits at a Glance

Type	Core Technology	Key Retail Benefit
AR Commerce	Smartphone-based AR	Accessibility & visualization
VR Commerce	VR headsets	Deep immersion

MR Commerce	AR + VR	Interactive realism
XR Commerce	Integrated immersive tech	Strategic scalability
Metaverse Commerce	Virtual worlds	Brand engagement
3D Visualization	3D modeling	Product clarity
Virtual Try-and-Buy	AR/VR fitting	Reduced returns
In-store Immersive	Digital interfaces	Phygital experience
Social Immersive	Live & social tech	Engagement & conversion

Complied by the Researcher

3.3.4 Immersive Commerce Characteristics

There are also a number of peculiar features of immersive commerce that distinguish it as opposed to traditional retail formats.

Interactivity

The concept of interactivity in immersive commerce is the capability of the consumer to collaborate with and interact with digital products and environments effectively and in real-time. Product rotating, zooming, in-store trials and interactive customization (among others) allow consumers to explore the product characteristics in a more effective way. This interactive participation enhances participation and further thinking process, thus amplifying product cognition and confidence in decision making.

Immersion

Immersion is the degree to which the immersive commerce locales produce a feeling of psychological presence, that is, the feeling that the consumers are a part of the virtual shopping scenery. AR and VR technologies enable consumers to have realistic simulating experiences, which narrow physical and digital retailing gap. This feeling of presence enhances the level of emotion and better shopping satisfaction.

Experiential Richness

Experiential richness refers to the combination of senses, emotional, and thought processes in immersive commerce to initiate compelling and lasting shopping experiences. Immersive commerce is an experience of shopping but not a transaction and is achieved through a blend of visual realism, interactive narrative, and emotional hints. This richness increases enjoyment, brand affinity, and satisfaction by the consumer.

Personalization

Personalization of immersive commerce means that content, product displays and interactions are personalized based on individual consumer preferences and behaviors. Seriously relevant and perceived value of shopping experience is created through data-driven customization and less information overload. The immersion experiences offer personalized and enhanced engagements, satisfaction, and acceptance to immersive commerce technologies.

Reality and Virtual Presence

Realism Realism in immersive commerce is the level to which digital products and environments are accurate in terms of emulating real-world qualities, including their texture, scale, lighting, and spatial depth. A high degree of realism improves the aspect of virtual presence so that a consumer can test products more confidently as in-store tests. It lowers the perceived risk and uncertainty hence facilitating informed purchasing decisions.

Omni-channel Integration

Omni-channel integration is an indication of the smooth joining between the physical, online, and immersive touch points of retailing. Immersive commerce is expected to fill the gap between offline and online experiences because it provides consumers with a seamless channel across-channel transitions. Such integration boosts convenience, continuity, and trust during the overall retail experience that promotes the continuous interaction with the brand.

Engagement and Co-creation

In immersive commerce, it is not just passive consumption but active involvement where the consumer is involved in the creation of value through customization, exploration, and interaction. Immersive platforms enhance emotional attachment and perceived ownership by engaging the consumers in the product configuration and the experience design. This joint creative activity has a positive effect on satisfaction and purchase intention.

Spatial Visualization

Spatial visualization is the process in which the immersive technologies assist customers in perceiving the dimensions of products, their fit and placement in a real or virtual environment. The AR-based room visualization and virtual layout allow making the product better understood and eliminate post-buying disappointment. This feature is especially useful in the furniture, fashion and home decor categories.

Technological Responsiveness

Technological responsiveness refers to the capability of the system to furnish the real time interactions without any delay or interruption. Quick loading, proper tracking and usability-friendly interfaces increase usability and reduce cognitive processes. A high responsiveness enhances consumer confidence in the immersive systems and it has a positive influence on shopping experience.

Emotional Engagement

Emotional engagement means the factor of immersive commerce to produce a positive mood of excitement, curiosity, and enjoyment in the course of shopping. Immersive commerce reinforces the affective reactions toward the brand through the establishment of stimulating and engaging environments. These emotional relations lead to increased satisfaction, recollection and loyalty.

All these features provide an improved consumer satisfaction, trust, and loyalty, which are essential results of retailers that practice the strategy of immersive commerce.

3.2.5 Immersive Commerce as a Strategy

Experience commerce goes hand in hand with the spirit of experiential marketing that is based on the idea of generating a memorable and interactive experience among consumers instead of just concentrating on the functionality of products. Pine and Gilmore (1999) argue that experiences are a unique economic product which can be used to create a competitive advantage. Immersive commerce realizes this idea by integrating the aspects of the experience into the shopping experience.

Immersive commerce decreases perceived risk and increases attachment to brands in consumers by allowing them to experience before they buy. This experience aspect is especially noteworthy in modern store settings, where customers are looking to be refreshed, entertained, and involved in addition to convenient and affordable. Immersive commerce therefore serves as a branding instrument, customer relationship, and building long-term relationships.

Strategically, immersive commerce provides retailers with several advantages, such as the expansion of customer engagement, better product knowledge, lower rates of returns, and brand positioning. Physical and digital touches are the two touch points where the retailer can develop seamless and consistent experiences by applying immersive technologies in their omnichannel strategy (Verhoef et al., 2015).

Immersive commerce will also facilitate innovation and flexibility in the fast-evolving retail settings. With the increased competition and the changing needs of consumers, immersive commerce allows retailers to test new formats, new business models, and value propositions. Immersive commerce in the emerging markets like India has a great potential to modernize retail infrastructure and increase competitiveness especially in urban and organized retail arena.

3.2.7 Problems of Immersive Commerce

Although immersive commerce is potentially successful, it is prone to a number of issues that could impede its internalization. Retailers have great obstacles due to high implementation and maintenance costs, complexity of technology, infrastructure constraints, and privacy of data.

Moreover, the absence of standardization and interoperability of different platforms may also make integration with the current systems complicated.

As a consumer, issues of usability, accessibility, and privacy can be inhibiting factors. Motor sickness, mental overload, and inconvenience in the case of the extended use of immersive technologies are other issues that need to be carefully designed and be user-oriented. It is necessary to overcome these limitations to achieve the full potential of immersive commerce.

Immersive commerce is a radical change in retailing that will alter the consumer experience with products, brands and shopping experiences. Through the combination of immersive technologies and the principles of experiential marketing, immersive commerce fills the physical-digital divide of the retail system and provides greater engagement, customization, and value generation. Although some issues still lie in the area of cost, infrastructure, and consumer readiness, the strategic advantages of immersive commerce make it an indispensable aspect of retail strategies in the future. Immersive commerce is set to dominate the next stage of retail transformation, as experience-based differentiation and customer-centric innovation are the topics of growing interest among retailers.

3.3 Indian Retail - An Overview

Indian retail industry is one of the most dynamic and high moving factors of Indian economy that has contributed to the economic growth and creation of job. As a naturally diverse space, the Indian retail industry is comprised of the structured and unstructured segments, with extensive assortment of products and services it provides, such as Clothings and Fashions, Food and Groceries, Furnitures and Apparels, Electronics, and tele-communication among others, traditional family-owned shops or kirana stores, which is largely controlled by the small sector, has seen a major change in the past 20 years, fueled by the urbanization process, economic liberalization, increased incomes, changing preferences of the customers, and the

India is one of the largest retail markets in the world with its retail market estimated to be worth more than USD 950 billion in 2023 and projected to be USD 1.5 trillion in 2030 (Deloitte, 2023). Chain stores, supermarkets, and online platforms make up organized retail, and currently represent about 1215 percent of the overall market but are expected to expand at a very fast rate

with more investment and a shift in consumer behavior (PwC India, 2023). Favourable government policies, including 100 percent Foreign Direct Investment (FDI) in single-brand retail and the rising infrastructural development (especially in the tier-II and tier-III cities) contribute to the expansion of an organized retail (Ministry of Commerce and Industry, 2024).

The emergence of e-commerce has raised the issue of the issue of the transformation of the retail environment, in applications such as Flipkart, Amazon India, and Reliance Retail that are taking advantage of mobile internet access and popularity of digital payments (KPMG, 2023). The COVID-19 pandemic expedited the adoption of digital programming even by the traditional retailers to have online and omnichannel strategies in order to compete with others. The boundaries of online and offline retail are therefore becoming more and more blurry, leading to so-called phygital experiences, which merge physical experience at the store with online convenience (EY India, 2023). The other shift in position is the introduction of consumer-centric retailing where the improved quality of service and customized shopping experiences are emerging as major points of differentiation. Gen Z and millienial population makes a significant part of the Indian demographic dividend and reinvigorates the retail demand with a more value-focused approach, brand ethics, and digital interaction (BCG, 2024). Nevertheless, even with this potential, the Indian retail industry is challenged with a lot of issues, among them infrastructural congestion, financial intricacies, ineffective supply chain and global competition. Unorganized sector, which is about 85 percent of the market, is still fragmented and hard to formalize, but with digitization and government initiatives such as GST and UPI, the divide has already commenced to reduce (NITI Aayog, 2023).

Additionally, inflationary forces, the changing geopolitical landscapes and swift technological upheavals demand retailers to be flexible, creative and resolute. However, the Indian retail market is still hoping to see a brighter future, which is supported by a good macroeconomic fundamentals, technological penetration, and age-driven aspirational consumers. The retailers that will be able to make the best use of data analytics, immersive technologies such as augmented reality (AR) and virtual reality (VR), and sustainable supply chains will probably gain a competitive advantage in this changing marketplace. Since India is on the path towards the 5 trillion economy, the retail industry is set to be central in the consumption-led growth narrative in the country and making India a global retail powerhouse (McKinsey & Company, 2024).

Figure 3.1

Immersive Technology and the Evolving Indian Retail



Compiled by the researcher

The figure shows the history of the evolution of the Indian retail industry, with the slow inclusion of immersive technologies as a part of the overall digitalization of the industry.

The first step is Traditional Retail (Pre-2000) where physical stores prevail, face-to-face communication is the norm, products are not well displayed on shelves, and there is a lack of use of online technologies. In this stage, consumers relied mainly on in store atmosphere, face to face interaction with sales people and the physical handling of products and there was no much room to personalize or enrich the experience (Grewal et al., 2009).

The second stage is E-commerce Boom (20002010) whereby the Indian retail has seen development of online marketplaces as a byproduct of higher internet penetration and primitive online payment systems. The relations between retailers changed to online stores with a broader product selection, transparency in prices, and convenience. Nevertheless, this step was, to large extent, transactional, based on fixed images and textual descriptions, which restricted the level of sensory appeal and consumer trust in buying decisions (Laudon and Traver, 2018).

The Mobile Commerce Phase (20102015) is a symbol of the high usage of smart phones and accessibility of cheap mobile data that changes the shopping habit in India. Retailers streamlined the mobile interfaces platforms and made them available everywhere and at any time of the day. The mobile applications brought more convenient and responsive experiences that formed the basis of real-time interaction and data-driven personalization, but immersive features remained mostly non-existent (Pantano and Priporas, 2016).

This was then succeeded by the Omnichannel Retailing Phase (20152017) which focused on the seamless integration of online and offline retail channels. Indian retailers implemented click-and-collect, single stock system, and standardized brand experience. This stage was the strategic turn to customer-focused retailing, balancing the digital convenience and trust to physical stores, and building a setting where the immersive technology could be integrated (Verhoff et al., 2015).

The use of Immersive Technology in Retail (20172019) is a turning point, with retailers initiating the experiment of augmented reality (AR), 360 views of products, interactive digital product catalogues, and smart mirrors. These technologies overcome the most significant shortcomings of the traditional e-commerce in terms of product visualization improvement, mitigation of perceived risk, and the confidence in decision-making. Most of the early adopters were found in the areas of fashion, beauty, furniture, and electronics retail (Javornik, 2016; Hilken et al., 2017).

The Early Adoption Stage of Immersive Commerce (20192021) is an indication of a wider adoption of immersive solutions, which has been accelerated by the COVID-19 pandemic. Retailers were forced to implement virtual showrooms, AR try-ons and in-store experiences to keep consumers involved in lockdowns and limited access to stores. The concept of immersive commerce at this stage turned into an innovation and a working strategic instrument, increasing customer attention, experience, and confidence in online platforms (Flavián et al., 2019).

The next stage, Integration of Artificial Intelligence (20222024) is the reflection of the convergence of immersive technologies and AI-driven systems. Retailers were progressively using AI to personalize and recommend, predictive analytics as well as intelligent virtual assistants in immersive settings. This connection made it possible to experience that was

adaptive and context-aware, turning immersive commerce into a scalable and data-driven retail approach that can be relied on to drive business performance and long-term competitiveness (Dwivedi et al., 2023).

Lastly, the Metaverse and Beyond (Post-2025) stage commemorates the future of Indian retail as virtual world environments are persistent, digital avatars are in use, ownership has been established through blockchains, and social commerce is immersive and transforms consumer-brand relationships. The retailers have been anticipated to develop integrated virtual ecosystems that are both physical and digital and provide experience-based, community-based, and value-co-creation types of shopping. This stage marks the move towards channel integration totally immersive retail ecosystems, and immersive commerce is an emerging force in Indian retail (Mystakidis, 2022).

3.3.1 Retail Sector in India Market size

By 2024, the Indian retail market is predicted to reach approximately 82 lakh crore (1 trillion USD) rendering the nation to be the fourth largest retail market in the globe as well. This is a massive growth relative to approximately 35 lakh crore in 2014 and the growth rate of this is approximately 8.9 per cent annually over the past 10 years. As long-term outlook remains optimistic, the industry will reach the mark of 190 lakh crore (approximately 2.3 trillion USD) by 2034 due to such aspects as urbanization, high incomes of the middle-income population, and the growth of consumer spending. An organized and unorganized retail market is separated in a broad manner. Even though the traditional kirana remains dominant and the informal retailers occupy the largest share, there are other players whose presence is organized retail or use of malls, supermarkets and branded chains that occupy about 12 per cent 15 per cent of the total market share. Indeed, even within the e-commerce alone, the segment increased to close to 19 percent CAGR to hit almost 147.3 billion USD in 2024. This is also being significantly contributed by the Tier II and Tier III cities as the smartphone penetration increases and the use of digital-readiness rise. The retail industries are now dynamically developing and it can be ascribed to the diversity of the Indian consumers and integration of both the digital and physical retailing processes. The diagrams below indicate the market size of Indian retail sector between the year 2014 and 2024.

3.3.2 Retail Major player and segments.

Fast-Moving Consumer Goods (FMCG)

FMCG segment, which is comprised of food, beverages, personal care, cleaning products and household essentials is one of the largest and most competitive retail segments. The massively organised players include Hindustan Unilever Limited (HUL), Procter and Gamble (P&G), Nestle, ITC Dabur and Patanjali that offer wide range of products at urban and rural locations. The penetrations that have been achieved by these companies involve association pool, advertising, and technology. At the same time, an extremely large network of unstructured kirana stores, which is the main selling point in the semi-urban and rural areas, has the fundamental selling point of convenience, credit, and personal relationship. Even digitisation has gone at a very high rate in the segment with JioMart, Amazon Pantry, and Blinkit beginning to form partnerships with small retailers to create hybrid models. The emerging trends of the segment growth are increasing coverage in rural areas, premiumisation and the innovations, which are health-based.

Apparel and Fashion

The shift of consumers in tastes, higher disposable income and the astounding growth of fashion are the defining success factors in the establishment and expansion of the apparel and fashion industries. Zara, H&M and Uniqlo are some of the global brands which compete with Aditya Birla Fashion and Retail (Pantaloons, Allen Solly), Reliance Trends and Arvind Fashions. City dwellers can find multiple brands and numerous items offered by the departmental stores such as Shoppers Stop and Lifestyle. Myntra, Ajio and Meesho are e-commerce platforms that are transforming the way individuals shop garments. They enable the consumers within the nation to purchase branded and unbranded clothes. The unstructured sector continues to operate, comprising of the street vendors, the local tailors and the traditional markets.

Consumer Electric and Appliances

The consumer electronics and appliances segment consists of mobile phone such as smart phone, laptops, desktops, kitchen appliances, Television, and white goods. The market leaders are

Croma (Tata), Reliance Digital, Vijay Sales and brand-owned stores by Samsung, Apple, Mi and At this point, OnePlus. Internet-based companies such as Amazon and Flipkart have transformed the way individuals purchase electronics by providing competitive costs, financing services, and delivery to the home. Other services such as insurance and installation are also promoted in such companies which promotes innovation. Nevertheless, the disorganized retailers such as small electronic stores and local retailers continue to contribute with the localized service and fast repair as well as offering individualized deals. Although big-box stores and e-commerce are more popular with the consumer population in the city, the rural and semi-urban population continues to depend on their local sellers when it comes to credit and trust in the transaction. The technological development, holiday sales, and low prices have a huge influence on this segment.

Grocery and Food Retail

The consumers are highly connected with food and groceries since it is the component of daily consumption patterns.Therefore this segment, however, influences the retail and the customer desires more on day-to-day basis. The largest divisions in the grocery and food retail are dairy, fruits, vegetables and groceries,packaged foods, and beverages. Formal competitors such as Reliance Smart, D-Mart, Big Bazaar, and Nature's Basket have established chains of supermarkets in the urban regions. Blinkit, Zepto, and Swiggy Instamart are some of the firms with quick-commerce that are transforming the way individuals shop groceries in urban areas due to their quick delivery. The large online groceries (JioMart, Amazon Fresh, and BigBasket) are yet to develop their strategies. Nevertheless, approximately 90 percent of grocery retail in India is done in a kirana style, street vendors, and local mandi, in the rural and semi-urban areas. These conventional retail offer familiarity, personalized service and credit facilities, which contribute towards good customer loyalty. They are also getting intertwined with the digital payment systems.

Home Furnishings and Furniture

This segment is indicative of interior style and life of the customer particularly urban millennials and nuclear families. Home decor, home furniture, kitchen fittings, lights and bedding. Online sales, ready-to-assemble, and high-end furniture are provided by organised players such as

Pepperfry IKEA, HomeTown, Urban Ladder, , and Godrej Interio. These retailers provides the newest and the trending designs, financing, and customization. Actually, Local stores and carpenters still serve the disorganized segment where affordable custom-made furniture is provided according to the particular space requirements. Traditional furniture stores and units run by family are common in small towns and rural areas. In the market, online retailers such as Flipkart and Amazon are also huge with value propositions. This segment also guarantees on modular innovation, sustainability and eco-friendly availability to its customers.

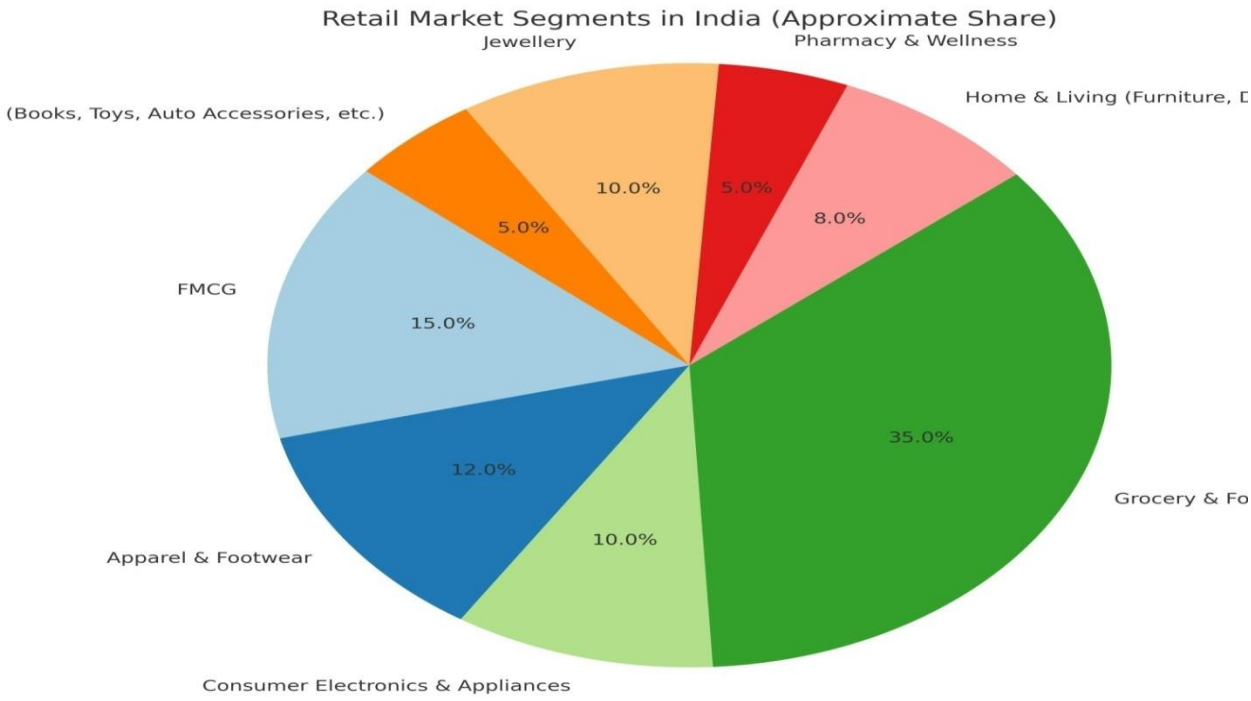
Health and Pharmacy Retail

The pharmacy and health retail store entails drugs and medication, wellness merchandise, health supplements, and health gadgets. These are sold on the prescription of medical practitioner. The main competitors include Apollo Pharmacy, MedPlus, Wellness Forever, and Guardian Pharmacy that provide reputable brand- and standardized services. This segment covers health care institutions such as online diagnosis, medical delivery and virtual consultancy is realized using online health solutions such as Netmeds, 1mg (Tata), and PharmEasy. These platforms foster to time-starved consumers and the remote and rural ones. Nevertheless, unstructured local chemists are still present particularly in the tier-1 and rural regions, which provide credit, local language support and emergency supplies. The pandemic increased the use of digital and regulation in the segment. The trend of growth is being fuelled by the rise in health awareness, management of chronic disease, and government incentive on healthcare infrastructure. The other critical success factors of this segment are still trust, reliability, and last-mile delivery.

Following is a pie chart that demonstrates the market share of key retail environments in India.

Figure 3.2

Market segments in India of the retail sector.



Grocery and Food Retail (35 percent) dominate since it is also daily expenditure according to daily consumption requirements. Others like FMCG, Apparel and Electronics are also significant specifically the markets of the urban and tier-2.

3.3.3 On-line Markets and E-Commerce

E-commerce is a trend that operates in all segments thus allowing direct contact to the customers around the globe. The online market place was dominated by major competition such as Amazon, Flipkart, Myntra, Ajio, Nykaa and Meesho. These channels have several segments such as white goods, fashions, FMCG and beauty products, such as kitchen apparels. They are developing at an accelerated rate in metropolitan and other urban cities with user-friendly applications, digital wallets, and extensive logistics networks. Meesho and WhatsApp-based selling represent social commerce that is assisting small enterprises and unorganised retailers to move to the digital world. Tata Neu, JioMart, and Reliance Digital are hybrid retail approaches, which combine offline and online platforms. Another aspect of e-commerce is that it offers

modifications in data analytics, supply chain and customization in flash sales and festivals. The influencer marketing will be significant in the acquisition of the consumers. The segment is being highly controlled in order to produce quality of the product, data protection, and healthy competition.

3.3.4 Effect of Tier1 and Tier II growth

Tier II and III city is fast emerging in India and is altering the retail and consumer situation of the country radically. Relying on the findings and the opinions gained during the sample study, it could be stated that the conventional issues of inaccessibility, awareness, and affordability is no longer an inhibitor of this new urban hub. Rather, they are becoming a focus of lively consumption with the infiltration of sound infrastructure, online penetration and aspirational tendencies of a consumer.The analysis has found Tier II and the Tier III city consumerism being mature in brand awareness and online preparedness. The convenient access to smart cellular phones at a reasonable price, omnipresence of the internet connection, and the integration of the digital format of payments such as the UPI have made the customer in these regions be more prolific in the e-commerce model. The vast majority of the people surveyed in such cities were involved in online purchases and often ordering fashion products, electronics, and personal care products in addition to determining that they were moving to a retail format that only locals were switching to a format that included both online and offline retailing. The other emergency observation on the sample studied was the quality and convenience uprising need. Although price is one of the factors, customers are not so reluctant to buy goods with a higher price, good quality of service and timely service. This forms the lives of the transformations in dreams and the emergence of a new generation in the middle classes that emulates the consumption life in cities.

In addition to that, these cities are being strategically invaded with churches and brands opening brick and mortar stores, offering last mile delivery and tailoring their ad campaign to fit the consumer. With such emergence, the variety of the consumer base is not only in the addition but also diminishes the obsessiveness with the metro cities. Overall, one can make a conclusion that the new nexuses of power, including Tier II and Tier III cities, that were observed in the sample study, represent the transition to the comprehensive evolution of retailing. These cities are now a

virgin land to be explored by the businesses that have a glimpse of this new breed of consumers in India who is connected to the internet, aspirant and willing to conduct business with a new breed of retailing formats.

3.3.5 Key drivers of Retail growth

Retail growth is pushed by major factors and these factors enhance retail growth and interaction with the customers. The technology in terms of online sales, mobile services and data analytics have altered how retailers interact with the customers so as to deliver the personalised experience and ease of access. The buying power has been experienced in the emerging economies through increasing middle class and disposable income. The urbanization and the improved infrastructure also advance the development of arranged retail forms. Substitution of consumer preferences as a result of change in lifestyle and brand recognition also plays a highly crucial role. Additionally, the government schemes that facilitated foreign direct investment (FDI) liberalization stimulated the retail growth and, supported digital payment system. The incorporation of the strategies of the omni-channel, which is a blend between the online and offline customer experience, has been required to attract and retain customers. Later, it is efficient and responsive to the needs of the market due to the newly developed supply chain management and inventory systems. All of these drivers combined cause a stable structure of vitality of the retail industry to assist it in sustaining growth and competitiveness.

3.3.6 Government Programmes

The Indian government has embarked on some radical plans which are applied in an attempt of accelerating the economic growth, and digital infrastructure growth and entrepreneurial growth. Two towering introverts include Digital India and Startup India that have caused an exceptional presence in the business environment including the retail, technology and innovation fields.Both launched in 2015, Digital India is the initiative to transform India into a digitally empowered society and the knowledge economy. It is also interested in improving cyber infrastructure, making internet access more accessible to more people, and digital literacy (Ministry of Electronics & IT, 2023). The retail market has become digital in terms of payments that can be spread due to the introduction of Digital India where the online marketplace and logistics have

enabled the small and medium retailers to access broader markets through the use of UPI, e-commerce applications, and QR-code payments.Similarly, Initiatives like Startup India, launched in 2016, is going to promote innovations, support entrepreneurship and reduce regulatory pressure. The program is providing tax incentives, simplified registration of compliance procedures, and investments in programs like the Fund of Funds for Startup (FFS) (DPIIT, 2024). This has seen India come out as the third-largest start-up ecosystem in the entire world that is eminently represented in fintech, health tech, retail tech, and immersive commerce.
The other significant programs include Make in India that promotes local production as well as restricting dependence on imports and Atmanirbhar Bharat (Self-Reliant India) established in the context of the COVID-19 pandemic duties to enhance capacities and digital transformation locally. Collectively, these policies offer a good business climate to digital commerce, retail innovation, and employment.

The Technological Indian Retail

The retail businesses in India have recorded significant technological advancement where it has evolved the traditional business to the present-day modern and technologically advanced ecosystems. Utilizing electronic payment methods of UPI, mobile wallets, and contactless cards has made transactions faster besides making customers convenient. The market has been further extended by online stores and phone applications to even the rural location where retailers can access the end consumer in the urban and rural locations. Hand-crafted marketing, inventory control, and optimization of consumer behavior are being implemented using technologies including artificial intelligence (AI), machine learning, or data analytics. The shopping is being enjoyable with self-checkout kiosks, smart shelves, and augmented reality (AR) innovations in the stores. In addition, RFID and IoT digitization of the supply chain will offer effective supply chain logistics and real-time tracking of assets. The new are combined offline and online retailing (i.e. omnichannel strategies) that offer an all round seamless experience to the customers. This is not only developing operational efficiencies but also developing new expectations of consumers in the dynamic Indian retail landscape.

3.3.8 Difficulties in the Technology Adoption Process

The process of implementing new technology is often full of challenges that do not allow a smooth implementation and effectiveness. One of the most significant challenges to overcome is the resistance to change especially among the members of staff who were accustomed to the old systems or feared of losing the job. The psychological inertia may reduce the duration to action and general effectiveness. There is also the issue of costs, which is a major setback as merely acquiring, maintaining, and upgrading technology infrastructure will cost a sizable amount that small or low-financed institutions might not afford. The other problem is digital illiteracy and inadequate training. Tools do not make people good and the lack of sophistication in the tools cannot compensate a lack of sophistication in the user. In addition, interoperability issues might also arise where the new technical products would not be coordinated with old ones resulting in data silos or disrupting workflow. There is also the concept of cyber security that contributes to the extent to which organizations would adopt such digital solutions enthusiastically to ensure that they do not subject themselves to vulnerabilities and data breaches.

In addition, regulatory and compliance limitations can deter the rate or level of technology adoption, especially in highly regulated sectors, like finance, or health care. Finally, organisations may have a hard time measuring the ROI on new technologies, which is why they might not be able to demonstrate the ROI on the investment in case they choose long-term deals. Addressing these obstacles requires proper planning and involving stakeholders and also provision of follow up.

3.3.9 Limitations on Infrastructure and connectivity

One of the major discouraging factors of successful integration and application of technology particularly in the developing world is the infrastructure and connectivity limitations. Poor Internet connectivity, electricity failures, and old hardware may severely reduce the efficiency of digital tools and platforms. The world still has numerous remote or semi-remote regions that lack ready connectivity to high-speed internet and unreliable connectivity may be an obstacle to services (real-time data processing, cloud computing, and other technology-related processes) that demand current bandwidth rates.

The limitations are especially severe in the industry that relies on frictionless digital interaction, e-commerce, fintech and immersive retail. In the absence of good infrastructures, deadlines are

set, operational costs increase and customers become frustrated. Moreover, in the urban rural distance on technological distance, several individuals are left out and unable to reap the benefits of the digital economy.

The more advanced technologies like 5g, fiber optics or IoT infrastructure, are also unavailable and it is harder to be innovative and to scale. Small companies and new ventures lack capital to modernize and enhance the infrastructure in use, hence subjected to competitive disfavors. On top of this, weak support systems of technical support and maintenance services exacerbate these issues and take extended downtimes and consequently reduced general efficiency.

These barriers will need to be tackled with the assistance of instruments, including state-entrepreneurial interaction, modifications to the policies, and special regulation of the evolution of the digital infrastructure so as to stimulate regional equality and eco-friendly technological rates.

3.3.10 Digital gaps and incompetence

The combination of the competencies, as well as the search, interpretative, judgment and usage abilities connected with the digital technologies, is called the digital literacy. In the contemporary dynamic digital age, digital competencies are very essential so that one can guarantee that a person, an organization and the economy are competitive. However, the technological advancement in this world is well above the ability of people to harness the might of such machines especially in the third world nations.

The issues that prevail in the skill gaps in digital literacy include the lack of knowledge of basic communication on how to use a computer or the internet orientation, the lack of information on a usage of cybersecurity tools, productivity, and communication tools. Such inequality is also expanded by other observations such as the social economic status, education, age and geographical location. Such loopholes at the work place undermine the adaptability of the individuals to accept digital transformation in their productivity, creativity as well as employability.

The gateway to this divide is developing an expanded digital learning, upskilling, and certain policies which will support a massive use of technology. The schools and other privately owned institutions and the government are supposed to work in conjunction in the delivery of the available digital training programs. The move toward enhancing the digital literacy is not just a welcome initiative in empowering individual in his or her digitally enabled journeys but also

activates the economic growth as it is among the avenues through which an individual can venture into the digital economy. Today, when the digitalization industry gained new dimensions, it is required to cross the digital skill gap, as it has to facilitate the distribution of the system, and all people should be capable of joining the digitalization world.

3.3.11 The increase in digital retail should be accelerated after the COVID

The COVID-19 significantly altered the retailing landscape in the international arena, prompting the swift development of digital technologies and the shift in the consumer activity. Both retailers and consumers needed to rethink the traditional shopping experience because of the need to socially distance, lockdowns, and hygiene consciousness. Digital retail has therefore not only been made possible but has also become a necessity. The retailers acted with speed within a short period to put technology into place that could be safe, efficient, and capable of maintaining functionality. It was more particularly echoed by the boom of online shopping, the hyperlocal delivery industry, the launch of contactless solutions, and other forms of reliance on technologies, such as QR codes. Besides, health and safety were now significant components of the retail experience and even influenced the store design, interactions with customers and even marketing strategies. All these changes combined are a scheme of the fundamental transformation of the retail, which is likely to persist even beyond the pandemic period.

3.3.12 Digital Shopping Expansion and Delivery to Neighborhoods Models

The advent of the COVID-19 has led to an online shopping boom that has never been witnessed before. With the physical stores shut down or getting only basic functions, individuals turned to e-commerce to get the needs and even the luxuries. As a result of the fast development of the online sale market globally, retailers across the globe resolved to enhance their online presence. Both groceries and clothes, all the categories experienced growth in digital demands. It also created the neighbourhood delivery models, where local stores utilised technology in offering rapid deliveries to local geographical locations. The popularity of these models can be linked to the fact that they imply same-day or even one-hour deliveries particularly in the urban and semi-urban areas.

They were able to succeed since hyperlocal platforms bridged the divide between the physical stores and the tech-savvy consumers, by organizing the stocks of their local stores and offering an easy-to-use app experience with online ordering. The startups and logistic partners did not fall behind either since they have also integrated the application of AI, real-time schedule tracking,

and the most effective route optimization. The adaptability of the hyperlocal services contributed to the survival of local business and their ability to continue delivering as per the needs of the consumers in the disruptive reality that the crisis resulted in. Such models are so essential after the pandemic, in particular, because they are convenient and fast. The retailers have already understood that they must implement the strategies of omnichannel that leverages the advantages of both physical and digital presence by becoming strong and agile in the future conditions. Immediacy that initially began as one of the new features is now becoming as a routine where consumers have increasingly demanded more and more innovations.

3.3.13 Cyber security and Data Privacy Concerns

The problem of cybersecurity and privacy is becoming one of the most critical ones in the face of the ongoing penetration of digital technologies in the sphere of retail and business. A massive amount of sensitive customer data has accumulated as a result of implementation of e-commerce, immersive commerce, cloud based platforms, AI based tools and analytical data about customer possesses. They are personal identification information, payment, shopping tastes, and tracking the location, which once they were not secure enough, can also become a victim of a cyber attack.

More pressure is being mounted on retailers to guard this information against attack, theft and exploitation. In the event that brands are affected by the data leak scandals of high profile, the confidence of consumers and thus brand image can be destroyed significantly resulting in fines and losses. Moreover, the customers are becoming more aware of how their data is collected and used, and they require the possibility and visibility of their online tracks.

There should be a high degree of cybersecurity environment, which includes, but is not limited to encryption, secure payment gateways, multi-factor authentication and the compliance with the data protection laws (and regulations) (e.g., GDPR, India Digital Personal Data Protection Act). However, small and medium scale retailers are usually not in the position to implement comprehensive data protection practices due to their lack of capabilities and knowledge. The state on cybersecurity and data privacy should be managed in order to provide business continuity and corporate security and, at the same time, establish customer confidence in the long term in an online-based shopping environment.

3.3.14 Future Trends and Road Ahead

Since the pandemic, the retail environment has been changing at high speeds due to emerging technologies and shifting consumer expectations. The retail industry will also experience another change surge due to increased adoption of digital. Any innovations that enhance sustainability, transparency, and personalisation tend to influence the future trends. Retailers seek to spend increased amounts of money on immersive technologies, blockchain solutions, environmentally-friendly processes, and AI-enabled devices to stay competitive and meet modern demands. These advances re-evaluate the core aspects of retail, including supply chain and customer service, as well as re-establishing the customer engagement.

Immersion commerce is a type of business that allows clients to engage with products in the most realistic and engaging ways possible, thanks to the power of augmented reality (AR) and virtual reality (VR). Immersion commerce reduces the unwillingness to purchase and increases satisfaction. Examples Virtually trying on clothes or shopping on a store that is in three dimensions. The whole shopping process is enhanced through formation of experiential touchpoints which are digital and physical retail.

The blockchain technology will transform the supply chain transparency. Blockchain can be used to prove the provenance of goods; their authenticity and whereabouts due to their protection on immutable records. It is especially crucial to those industries such as food, pharmaceuticals, and luxury goods where the key element is trust and traceability.

The key drivers of brands are becoming green retail technology and sustainability. Customers have begun to remain loyal to eco-friendly businesses that use less water and conserve energy and resort to ethical sourcing. Retailers are also using new products to attain green goals or objectives and cut down operations costs like the energy-efficient smart stores, digital receipts, and circular supply chains.

Finally voice commerce and AI chatbots are transforming the relationships between consumers and brands. Voice-assisted purchasing and assistance through AI chatbots simplify the process of purchasing and finding products and allows them a personalized and immediate approach to the issue. The above tools ease and simplify the act of shopping and managing the customers, shaping a shopping experience that becomes much simpler and faster. All these trends combined

with one another create the latest stratum of innovation in retailing business - the fusion of genius, eco-friendliness, and experience in enterprises.

3.4 Theories of Immersive Commerce

The Theories implemented to study the immersive commerce and its effect on retailing are explained below;

3.4.1 Technology Acceptance Model (TAM).

The model that can be used to explain the impact of the perceptions and views of the usefulness and ease of use on the implementation of immersive commerce technologies by the retailers is the Technology Acceptance Model (TAM) (Davis, 1989). TAM helps to clarify that the opportunities of Indian retailing, including the enhanced customer engagement and visualization of the product as experienced, contribute to the perceived usefulness, and thus encourage the improved adoption of immersive commerce. The perceived ease of use is also reduced by the complex nature of the system, the absence of training, and unfamiliarity with technology, which leads to hesitation of retailers to adopt solutions based on immersion. Therefore, Technology Acceptance Model lies at the core to explain the acceptance, behavioral intention and willingness of the retailers to integrate immersive commerce into their business activities. (Davis, 1989)

3.4.2. Unified Theory of Acceptance and Use of Technology (UTAUT)

To explain the behavior and actual use of the immersive commerce technologies by retailers, the Unified Theory of Acceptance and Use of Technology (UTAUT) offers an overall concept of how performance expectations, effort expectations, social influence, as well as facilitating conditions can influence it (Venkatesh et al., 2003). Performance expectancy in the context of the Indian retail is connected with the idea that immersive commerce will increase customer experience and business performance, whereas the expectation of effort concerns the issues of technological complexity and skills of the workforce among retailers. Implementation success depends also on facilitating conditions, which include infrastructure, digital preparedness, and support by managers. As such, UTAUT assists in determining organizational obstacles plus adoption catalysts in immersive retailing setting. (Venkatesh et al., 2003)

3.4.3 Diffusion of Innovation Theory (DOI).

The Diffusion of Innovation (DOI) theory explains the behavior of immersive commerce diffusion amongst the retailers basing on the perceived features like the relative advantage, compatibility, complexity, trialability, and observability (Rogers, 2003). The relative benefits of immersive commerce to Indian retailers are evident in the fact that it will provide a better experience in the shopping process, competitive distinction, and product visualization. This adoption is however constrained due to issues of complexity in its operations, gaps in its infrastructure and issues of investment. DOI assists in discovering why the first to adopt strategies have a strategic advantage and how perceived opportunities can lead to innovation, and issues and threats decelerate the process of larger retailing market adopting innovation. (Rogers, 2003)

3.4.4. Resource-Based View (RBV)

According to the Resource-Based View (RBV), competitive advantage is based on specific, unique, rare, and imitability resources, which in the case of this paper are immersive technologies and scale abilities (Barney, 1991). The retailers can create strategic assets, which include the customer experience, personalized interactions, and better product interactions through the use of immersive commerce and this will in the end lead to business performance. Applied to the case of Indian retailers, RBV describes how the investment in the use of AR/VR possibilities, digital talent, and technological infrastructure causes the high-performance results, and insufficient funding or technological expertise interfere with the development of the competitive advantages. (Barney, 1991)

3.4.5. Stimulus-organism response (S-O- R Model).

The S-O-R model states that the external factors produce an impact on the internal organismic states which in turn cause a behavioural reaction (Mehrabian and Russell, 1974). AR/VR-enabled elements of stimuli in immersive commerce in the case of virtual try-on, 3D interactive products and immersive store experience can be example stimuli. These stimuli influence internal states including customer satisfaction, engagement, trust, and involvements, which eventually result in behavioural response, including loyalty, repeat purchase intention, and positive word-of-mouth. In the case of Indian retailers, S-O-R is useful in explaining the

relationship between immersive experiences and consumer loyalty and perceived value. (Mehrabian & Russell, 1974)

3.4.6. Customer Experience Theory

Customer Experience Theory states that the experience that is memorable, involving, and experience-enriching to customers is one that can have a strong influence on consumer perceptions and satisfaction, as well as their loyalty (Pine and Gilmore, 1998). Experiential Imagine an online shopping feature that embodies a sense of experience through the creation of virtual environments that can be interacted with, technology that allows the exploration of products individually, and customer experiences that are emotionally charged. This theory, as applied to the case of Indian retailers, is prone to the belief that AR/VR-powered experiences enhance brand perception and loyalty, so experiential enhancement of retailing is one of the major opportunities of immersive retailing. (Pine & Gilmore, 1998)

3.4.7. Relationship Marketing / Theory of Commitment / Trust.

Commitment-Trust Theory is a theory which states that the relationships are flourishing when there is high level of trust and commitment (Morgan and Hunt, 1994). Authenticating AR try-ons and apprehensible virtual store experiences in immersive commerce form consumer trust and loyalty. The given theory can be applied to Indian retailers by stating that immersive technologies can be utilized to boost customer relationships in the long-term by increasing confidence, satisfaction, and emotional attachment and contributing to loyalty and re-engagement. (Morgan & Hunt, 1994)

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3.4.8. Technology-Organization-Environment (TOE) Framework.

Technology-Organization-Environment (TOE) model is used to describe the implementation of immersive commerce by assessing three dimensions of technological preparation, organizational capability and environmental pressure (Tornatzky and Fleischer, 1990). The technological factors are AR/VR complexity and system integration, the organizational ones are skills of staff, financial resources, and strategic intent, and the environmental ones are competitor adoption, customer expectations, and market dynamics. TOE is applicable in the Indian retail context to

describe the operational and strategic issues that discourage the implementation of immersive commerce. (Tornatzky & Fleischer, 1990)

3.4.9. Perceived Risk Theory

Perceived Risk Theory holds that, people will evaluate the losses that could be incurred in case of making a decision before adopting new technologies (Bauer, 1960). The retailers of immersive commerce face risks of financial investment, data privacy, cybersecurity, performance uncertainty, and disruptions of the operations. These dangers cause uncertainty and have an adverse impact on adoption and implementation. A perceived great risk is usually a significant obstacle in Indian retailing, particularly among the small and medium retailers who lack the technological knowledge. (Bauer, 1960)

3.4.10. Adoption Resistance Theory

Adoption Resistance Theory Adoption Resistance Theory is the theory stating that resistance is caused by the functional (complexity, cost, performance uncertainty) and psychological (tradition, image, perceived risk) barriers which prevent technology adoption (Ram & Sheth, 1989). In case of immersive commerce, retailers might be opposed to adoption because of a perceived complexity of technologies, inclusiveness to customers, ignorance, or resistance to change. The theory applies to the Indian retail setting whereby numerous retailers are reluctant to implement AR/VR systems yet they can reap the advantages. (Ram & Sheth, 1989)

3.4.11. Dynamic Capabilities Theory

The Dynamic Capabilities Theory holds that organizations need to constantly feel the presence of new opportunities, utilize the technological inventions, and reorganize the available internal resources to remain competitive (Teece et al., 1997). To achieve immersive commerce, dynamic capabilities can assist a retailer in defining the growth prospects in the future, innovate around AR/VR applications, and transform their business model to respond to the new digital trends. This theory can be used in Indian retail to grasp the opportunity of how immersive commerce may influence long-term innovation, market development, and strategic change. (Teece et al., 1997

3.5 Conclusion

The chapter has given a broad theoretical base to look into the aspects of immersive commerce in the modern Indian retailing scenario. Through the systematic synthesis of ideas in the literature of immersive commerce, research on retail transformation, and previous theoretical frameworks, the chapter places the immersive commerce as a thoughtful and experience-based developmental formulation of the classic e-commerce, as opposed to technological upgradation of the same. As highlighted in the discussion, the core idea of immersive commerce is the ability to transform how consumers and retailers interact with each other, as it facilitates interactivity, immersion, personalization, and the richness of experience, which has long been missing between the physical and digital store setup.

In the chapter, a unique combination of sophisticated technology, including AR, VR, MR, XR, AI, and data analytics, is emphasized as the core of immersive commerce allowing consumers to better visualize and engage with the visual experience and develop more confidence in their choice. These technological values are consistent with the principles of experiential marketing and omnichannel strategies, as they support the idea of immersive commerce as one of the dynamic differentiators of customer engagement and value creation. Strategically, immersive commerce helps to achieve customer satisfaction, purchase uncertainty, enhanced brand presence as well as innovation-driven competitiveness, which are of growing importance in the dynamic and competitive retail environment of India.

Simultaneously, the chapter is critical to recognize the complex problems that limit the implementation of immersive commerce in India. Financial constraints, technological, infrastructural, digital illiteracy, cybersecurity, and change resistance are identified as a major obstacle especially among small and medium-sized retailers. The unequal nature of distribution of digital infrastructure in regions and the variety of retail formats complicate the efforts of implementation. Such dilemmas support the significance of contextual and organizational preparedness in dictating the achievement of immersive commerce approaches.

Using various theoretical viewpoints the chapter provides a multi-dimensional and holistic theory to comprehend the implementation of immersive commerce. The various theories play a

different role in explaining the acceptance to technology, diffusion of innovation, consumer reaction, strategic use of resources, and environmental factors. The combination of the two gives a substantial explanatory framework of the interaction of opportunities and challenges to influence the results of immersive commerce in Indian retail.

To sum up, this chapter provides a very robust conceptual and theoretical foundation to the empirical research that follows. It explains the major constructs, relations and situational aspects to the adoption and implementation of immersive commerce. The chapter contributes to the depth, consistency, and rigor of the analysis of the study by placing the concept of immersive commerce into the context of the Indian retail transformation and basing the argument on the previously proven theories. The theoretical framework created in the present study can be considered a prism through which the positive and negative factors of influence on the successful implementation of the immersive commerce strategies in the contemporary Indian retailing can be viewed.

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CHAPTER 4

RESEARCH METHODOLOGY

4.1 Introduction

Research methodology refers to the structural and systematic framework that supervise the research process. It is an outline of overall approach employed to the research problem, that identifies the relevant variables, specifies the criteria and procedures for selecting participants, and the methods to be used for data collection. It outlines the methods of analysis to be used in making conclusions of the data.

The research methodology is structured with reliability and objectivity in the research by considering all the factors. Research methodology is not a strictly procedural one, and it entails epistemological and ontological assumption by the method of recognizing and expressing reality through research (Creswell and Creswell, 2018).
It is a positivist paradigm, based on the assumption and knowledge that can be objectively studied, quantified, and validated through conducting a systematic empirical research (Saunders, Lewis, and Thornhill, 2019).

The current chapter deals with the Methodologies adopted by the researcher in the discussion of Positive Impact Factors and Negative Impact Factors that affect the Successful Implementation of Immersive Commerce such as Opportunities, Customer loyalty, Business performance, Future potentials, Challenges, Risks and Barriers of immersive commerce in the Indian retailing market. The researcher adopts a **deductive approach**, wherein theoretical objective, constructs and hypotheses derived from existing literature on immersive commerce that are tested using quantitatively collected field data. The cross-sectional survey form allowed for obtaining the perceptions and the aspect of behavior at a specific moment and the analysis of the current tendencies will be easy without the time distortion (Bryman, 2016).
The causal relationship among latent variables was explored by the quantitative approach and application of the structured questionnaires and Structural Equation Modelling based on Postitive and Negative Impact Factors that affect the successful implementation of Immersive Commerce. Also, the methodological validity is ensured through reliability testing, confirmatory analysis, and reduction of bias, as the results are deemed credible and applicable to the Indian retail

context, in general, which is large (Hair et al., 2019). In short, that chapter gives an account of the conceptual/analytical framework to which the research is linked, where methodological are designed based on research objectives and theoretical orientation.

4.2 Research Design

The current research design is descriptive and explanatory, which has been adopted in order to investigate the interrelationships between the different constructs relevant to the adoption of immersive commerce in Indian retail industry in a systematic manner. Research design gives a logical framework and a procedural design in which the research is being undertaken so that the data collection, measurement, and analysis process of the research are guided (Creswell and Creswell, 2018).

The research concentration on what opportunities (enhancing the experience and product positioning) and challenges (financial, technological, readiness of consumers, etc.) contribute to the performance of the business and the overall chance to successfully implement the immersive commerce is affected by all the Customer loyalty variables. The use of explanatory research design is especially suitable in situations when it is necessary to confirm theoretical assumptions and prove the conceptual models with the help of empirical analysis (Bryman, 2016).

On the whole, the research design is developed in such a manner that can guarantee its clarity, analytical rigor, and close correspondence to relevant theories. Combining the descriptive and explanatory methods in a quantitative framework, it allows undertaking a systematic and valid analysis of the circumstances of immersive commerce adoption and its results concerning contemporary Indian retailing.

4.3 Research Onion

Research Onion model was developed by Saunders, Lewis, and Thornhill (2019), who offers the framework of methodological decisions systematically selected and justified. The Research Onion indicates the interrelationship of the research philosophy research approach, research

strategy, time horizon, and data collection methods by which all methodological decisions are consistent and in line with the objectives of the study.

Figure 4.1

Research Onion Model

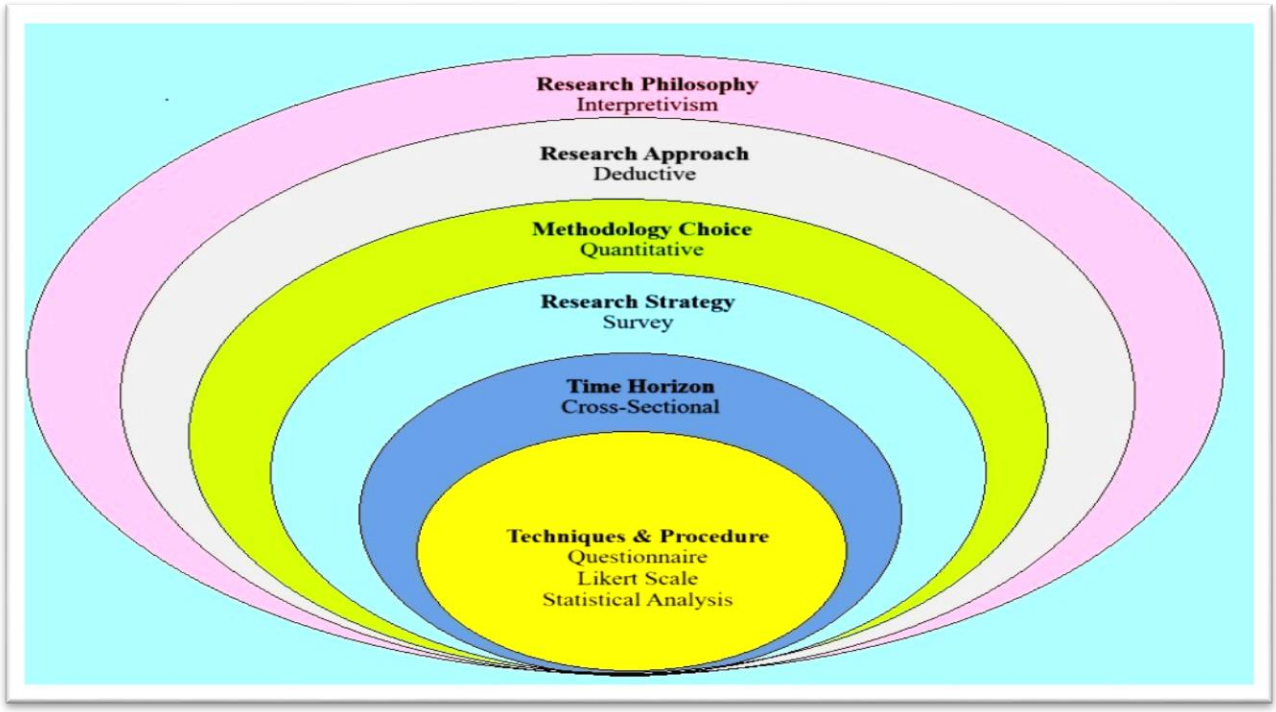


Table No.4.1

Layers of research onion

The detailed explanation and layers of research Onion are explained below;

Sl. No.	Name of the Layer	Explanation	Layer Applicable to Current Study

1	**Research Philosophy**	Research philosophy indicates beliefs and assumptions regarding how knowledge about a phenomenon is developed and interpreted (Saunders, Lewis, & Thornhill, 2019). Interpretivism focuses on understanding human experiences and socially constructed meanings.	**Interpretivism** – The study interprets retailer perceptions regarding immersive commerce implementation.
2	**Research Approach**	Research approach explain about the relationships between the theory and hypotheses. Deductive reasoning tests hypotheses derived from existing theories through empirical observation (Creswell & Creswell, 2018).	**Deductive** – Hypotheses were formulated from existing theoretical models such as Experiential Marketing, TAM, UTAUT, and S-O-R, and then tested using collected data.
3	**Methodological Choice**	Methodological choice refers to the selection of quantitative, qualitative, or mixed methods based on study objectives (Bryman & Bell, 2015). A quantitative approach examines the statistical relationships among variables.	**Quantitative** – Mathematical and Numerical responses collected through structured questionnaires which measure the relationships between constructs.
4	**Research Strategy**	A research strategy refers to the plan of action for data collection. Survey strategy is commonly used for large samples requiring standardized data (Saunders et al., 2019).	**Survey Strategy** – A structured questionnaire was distributed to retailers to collect primary responses.
5	**Time Horizon**	Time horizon shows that the data is collected across one time period (cross-sectional) or multiple periods (longitudinal) (Creswell & Creswell, 2018).	**Cross-Sectional** – Data were collected once, between January 2025 and April 2025.

6	**Techniques & Procedures**	Techniques and procedures refer to statistical tools used to collect, measure, and analyze data (Saunders et al., 2019). Statistical analysis helps in testing hypotheses and determining variable relationships.	**Questionnaire**, **Likert Scale**, **Statistical Analysis** (Descriptive, Correlation, Regression, SEM).

4.4 Source of Data

The researcher employed both the primary and secondary data in the study.

4.4.1 Primary Data

The current study is predominantly founded on primary data. The respondents involved in e-retail business received a questionnaire, which served as the primary source of data collection to the respondents who have experience with or are considering using immersive commerce technologies in their business.

4.4.2 Secondary Data

The secondary data were gathered in order to draft review of literature and theoretical framework. The following are the reports used;

1. Academic Journals
2. Research Papers
3. Market Research Databases
4. Company Reports
5. Press Releases
6. Annual reports
7. New technology PR releases.
8. Company blogs
9. Conference Proceedings & Webinars.
10. Retail tech summits.

11. Social media platforms
12. Trade Magazines and News Articles.
13. Industry Reports
14. Government and Institutional Report
15. Governmental documents,rules, and reports concerning the country's political and economic status.

4.5 Population of the Study

The population is made up of retailers in different Indian IT and retail hubs, that are both Tier-1 and Tier-2 cities, where the Immersive Commerce Adoption is movisible and strategically oriented. The research is targeted at Retail owners and Retail managers of the retail formats of brick and mortar stores, e-commerce and m-commerce stores, and Omni-channel retailing arrangements. The respondents are contacted in several retail segments namely, apparel and fashion, electronics and gadgets, grocery and FMCG, furniture and home decor, beauty and personal care, and other new emerging retail segments.. Such diversity is needed to find out the Opportunities and Challenges of applying immersive commerce in various retail environments. The study population is constituted by retailers of Tier-1 cities like Bengaluru, Mumbai, Delhi NCR, Hyderabad, Pune and Chennai that are more digitally prepared and that of Tier-2 cities like Ahmedabad, Indore, Jaipur, Kochi, Coimbatore and Bhubaneswar to draw in new immersive adoption patterns.

4.6 Sampling Design

It employs Proportionate Stratified Sampling Design in order to make sure the respondents selected are a fair representation of the various attributes of the retail industry in India. When the population is heterogeneous and homogeneous subgroups have to be represented proportionately, a stratified sampling method is appropriate (Creswell and Creswell, 2018). In this research, the population was categorised into Tier-1 and Tier-2 retail centres, in terms of the degrees of technological impact and digital infrastructure. According to industry reports, the penetration of immersive commerce in Tier-1 cities is stronger, estimated to be 65 percent of the organized retail, with Tier-2 cities, stating the rest 35 percent, respectively, and hence the sampling distribution was matched to this market structure (NASSCOM, 2023). Each stratum was further

divided into retail format (Brick-and-Mortar, E-commerce/M-commerce, and Omni-channel) and product category (Apparel and Fashion, Electronics, Grocery and FMCG, Furniture and Home Decor, Beauty and Health Care, and Others) to be adequately represented.

4.6.1 Determination of Sample Size.

The smallest sample size was decided based on Cochran (1977) equation that gave the value of large/ unknown populations at confidence level of 95 and 5% margin of error assuming highest level of variability (p = 0.50) in order to arrive at a conservative estimate The sample size will be determined using the following formula

$$n_0 = \frac{z^2 p(1-p)}{e^2}$$

$$= \frac{(1.96)^2 \text{ x } 0.5(0.5)}{0.5^2}$$

$$= \frac{3.8416 \text{ x } 0.25}{0.0025}$$

$$= \frac{0.9604}{0.0025}$$

$$= 384.16$$

Whereas z = Standard normal curve;

p = Estimated population and;

e = Margin of error.

4.6.2 Selection of Sample

A detailed description of selection of sample is shown as below in the table No.

Table 4.2

Proportion of Samples from Populations

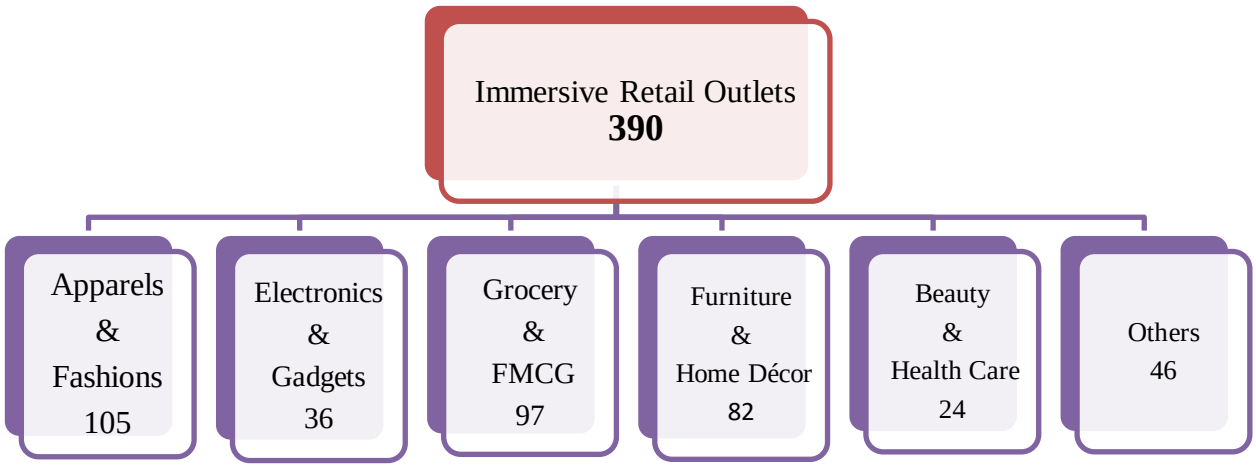
SL No.	City	City Type	Questionnaire Distributed via Google form	Questionnaire Received	Questionnaires Finalized After the removal of Non-sampling Error	Total	Grand Total
1	Bengaluru	Tier 1	390 (65%)	260	Apparels & Fashions	68	253 (65%)
2	Mumbai				Electronics & Gadgets	23	
3	Delhi NCR				Grocery & FMCG	63	
4	Hyderabad				Furniture & Home Décor	53	
5	Pune				Beauty & Health Care	16	
6	Chennai				Others	30	
7	Ahmedabad	Tier 2	210 (35%)	138	Apparels & Fashions	37	137 (35%)
8	Indore				Electronics & Gadgets	13	
9	Jaipur				Grocery & FMCG	34	
10	Kochi/Trivandrum				Furniture & Home Décor	29	
11	Coimbatore				Beauty & Health Care	8	
12	Bhubaneswar				Others	16	
	Total		**600**	**402**			**390**

The table represents the proportionate sampling and completion of the sample that was chosen with regard to the selected Tier-1 and Tier-2 retail hubs in India. Overall, 600 questionnaires were received by filling out a Google Form, with 390 (65) sent to Tier-1 cities, Bengaluru, Mumbai, Delhi NCR, Hyderabad, Pune, and Chennai, and 210 (35) went to Tier-2 cities, Ahmedabad, Indore, Jaipur, Kochi/Trivandrum, Coimbatore. Among the 600 questionnaires that were given, 402 were returned and 390 valid responses were incorporated in the statistical analysis after eliminating duplication through non sampling errors. Out of the responses received, 253 (65) out of the total responded to were Tier-1 cities and 137 (35) out of the total responded to were Tier-2 cities, which is the desired sampling ratio. The respondents were also split among the primary retail sectors of the Apparel and Fashion, Electronics and gadgets, Grocery and FMCG, Furniture and home decor, Beauty and health care and Other retail, which

increases the diversity and contribute to the generalisability of the study results to diverse retail settings (Researcher's Primary Data, 2024).

Figure No. 4.2

The Composition of Samples Across Major Retail Categories



4.7 Tools used for Analysis

The tools used to analyse the statistical data were taken under the aid of statistical packages such as IBM SPSS 26.0,and AMOS 23.0, The following are the tools used.

4.7.1 Percentage Analysis

The percentage analysis was used to describe and sum up the responses in terms of the demographic and retail characteristics. When the percentages are made, it is easy to interpret and compare the different respondent groups made of raw data. In this study, percentage analysis has been utilized to justify the sample composition based on gender, age, education qualification, experience, designation, retail format and place that it further statistical analysis (Creswell and Creswell, 2018).

4.7.2 Mean Score Analysis

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The mean score was analyzed in explaining the average score of congruency on Likert scale about the constructs of immersive commerce. The central tendency of the respondent perceptions is presented using mean values as a result of which the researcher may conclude whether the respondents agreed and disagreed with each other mostly, or they were in a neutral position regarding various dimensions. This enabled the significant interpretation of the perceptions of the retailers as related to opportunities, customer loyalty, business performance, challenges, and risks (Hair et al., 2019).

4.7.3 Standard Deviation (SD)

Standard Deviation was used to find out the degree of variation of the responses around the mean. A small SD value implies that the answers are similar and a large SD value implies that there is a divergence of opinions between the respondents. This statistical measure provided a clue on the consistency and reliability of the perceptions of retailers of the adoption of immersive commerce (Field, 2018).

4.7.4 Ranking Method

The ranking of items in constructs based on their mean score was done in order to prioritize items. This helped to determine the strongest elements of immersive commerce that the retailers think are the strongest and what challenges appear to be of greater importance. Ranking supported the concept of strategic interpretation because it highlighted the importance of each factor in the decision-making process of retailers (Zikmund et al., 2019).

4.7.5 Correlation Analysis

Correlation analysis was used to compare the relationships between the key study variables in order to establish the direction and the strength of the relationship between the variables. It helped to determine whether or not one variable is related to gains or losses of another variable. The tool served as a test to get acquainted with their interdependence between opportunities, customer loyalty, business performance, and future potentials before using regression and SEM (Pallant, 2020).

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4.7.7 Multiple Regression Analysis.

The Multiple Regression Analysis was utilized to establish the degree into which the independent variables might have influenced a dependent variable. It allowed the researcher to assess the predictive ability of perceived value, customer engagement, and system reliability on customer loyalty and the aspects of business performance on the effective implementation of immersive commerce (Hair et al., 2019).

4.7.7 Multivariate Analysis

The multivariate test statistics of SIIC on multiple business performance constructs were analyzed concurrently with Multivariate Analysis of Variance (MANOVA) in relation to Pillais Trace, Wilks Lambda, Hotellings Trace and Roy Largest Root. The major multivariate results were followed by applying Univariate ANOVA to determine which specific dependent variables Sales Growth, Customer Retention and Trend Adaptation were significantly affected by SIIC. Also, R2 and F-statistics were compared to determine the strength and explanatory power of the effects in each of the constructs.

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4.7.8 Independent Sample t-Test

The independent sample t-test was used to compare the mean responses of two independent groups such as male and female respondents or two other groups of people such as a male and a female. It was a test that was utilized to determine whether differences in the perceptions of immersive commerce adoption and challenges were found to be statistically different between binary demographic groups (Field, 2018).

4.7.9 One-Way ANOVA

In case of the response of more than two groups such as age groups, experience groups, location groups and so on. One-Way ANOVA was employed. It was practical in determining the difference in perceptions among retailer segments and in which large results were achieved, post-hoc tests were used to determine specific group differences (Pallant, 2020).

4.7.10 Post Hoc Analysis

After obtaining significant values in the One-Way ANOVA, post Hoc test was used in order to know which groups of people were different. In the same period that ANOVA reveals the existence of a significant overall difference in group means, it does not point to the point of difference. Thus, Tukey HSD (Honestly Significant Difference) Post Hoc test was used in this study because this is suitable when the sample sizes of groups are relatively similar and assuming the homogeneity of variances. (Field, 2018; Pallant, 2020).

4.7.11 Factor Analysis

Factor Analysis was used to check the construct-structure by determining the underlying dimensions in the questionnaire. Exploratory Factor Analysis (EFA) was employed to cluster similar items into logical reason and Confirmatory Factor Analysis (CFA) was employed to test the convergent and discriminative validity. This was to ensure that the measurement model used in SEM was both reliable and valid in terms of statistics (Hair et al., 2019).

4.7.12 Structural Equation Modeling (SEM).

Structural Equation Modeling (SEM) involving AMOS was used in the study to examine the causality of the relationship between latent constructs. The combination of the factor analysis and path analysis that allows to test multidimensional and multivariate complex models is offered by SEM. It confirmed the direct and indirect connection between opportunities, customer loyalty, business performance, and future potentials of successfully implementing immersive commerce (Byrne, 2016).

4.8 Tools Used for Data Collection

In this study the main instrument of data collection was a structured questionnaire that is phrased in such a way that it would yield a structured response on the topic on immersive commerce

implementations in retail organizations. Structured questionnaires have an extensive application in social science studies especially, in a quantitative study, because they allow consistency in data collection, minimize bias of the interviewer, and make the statistical analysis of the results comparative (Creswell and Creswell, 2018). The questionnaire had two sections viz., Part A includes Demographic Characteristics of respondents and Part B includes the major part of the study. Among which 9 statements were concerned with Demographic related questions which are measured at categorical scale and 80 statements represent the main part of the study which is measured using a five-point Likert scale, Strongly Disagree (1) and Strongly Agree (5) respectively. This scale of measurement was appropriate to perceptions, attitudes, and intention to behavior in the case of immersive commerce technologies.

Part A of the questionnaire under the demographic and organizational section included information of gender, age, educational levels, years of experience and position/designation and characteristics of retail, which included retail format, annual turnover, location and type of retail. Part B of the study evaluated the latent constructs of the study, such as enhancement of the experience, positioning the product, perceived value, engagement, reliability, and business performance outcomes, innovation potential, financial constraints, and technological constraints, consumer readiness, and risks. Everything was modified according to the validated scale of measurement depending on the strong conceptual reference to guarantee conceptual correspondence and content validity (Malhotra and Dash, 2016).

The instrument was tested to make sure that it was clear and appropriate and refinements were made accordingly. The structured questionnaire was thus an effective and valid instrument of gathering primary data in this study.

4.9 Variables used for the study

The main purpose of the study is to analyse the various factors affecting the successful implementation of immersive commerce in Indian retail sector. The researcher used the following variables for the study based on the objective formulated.

Table 4.3

Variables used for the Study

Purpose	Name of the Variable	Description
Opportunities	Experiential Enhancement	Immersive technologies (AR/VR) enhance sensory, emotional, and interactive elements of the shopping experience, increasing enjoyment and involvement.Kim, J., & Forsythe, S. (2008)
	Product Positioning	Ability of immersive tools to visually present products more attractively, helping customers understand features, style, and usage.Fiore, A. M., et al. (2005)
Challenges	Financial Constraints	Monetary limitations related to high investment and maintenance costs required for immersive technologies.Pantano, E., & Gandini, A. (2017)
	Tech-related Constraints	Challenges associated with hardware, software, bandwidth, and technical skill required for AR/VR implementation.Javornik, A. (2016)
	Infrastructure Blockage	Lack of sufficient network, digital infrastructure, and device accessibility hindering immersive commerce.Verhoef, P. C., et al. (2021
	Consumer Readiness	The willingness, awareness, skill, and confidence of customers to adopt immersive shopping technologies.
Customer Loyalty	Perceived Value	Evaluation of the benefits of immersive shopping relative to time, effort, and cost.

	Consumer Engagement	Level of emotional, cognitive, and behavioral involvement customers experience during immersive shopping interactions.Hollebeek, L. D. (2011)
	Reliability	Consistency, stability, and security of immersive systems in performing without errors.DeLone, W. H., & McLean, E. R. (2003)
Business Performance	Sales Growth	Increase in revenue as a result of improved product experience and consumer engagement through immersive retailing.Pantano, E. (2014).
	Customer Retention	Ability to maintain ongoing customer relationships by providing satisfying immersive shopping experiences.Lemon, K. N., & Verhoef, P. C. (2016)
	Trend Adaptation	Retailers' capability to adopt and respond effectively to technological and consumer trends such as AR/VR.Rogers, E. (2003)
Future Potentials	Innovation Capability	Ability of a retailer to introduce and apply new immersive solutions to remain competitive.Teece, D. J. (2007).
	Growth Potential	Future scope for expansion, competitive advantage, and business development enabled by immersive commerce.Bharadwaj, A. (2000)
Risks and Barriers	Financial Risk	Probability of financial loss due to uncertain outcome of investing in immersive technologies.Kotler, P., & Keller, K. L. (2016)
	Operational Risk	Possible disruptions in workflow, staff adaptation, and process execution during immersive technology implementation.Davis, F. D. (1989)
	Security and Privacy Risk	Concerns related to protection of consumer personal data and digital identity in immersive environments.Belanger, F., & Crossler, R. (2011)

	Inclusivity	Ensuring immersive systems are accessible and usable for people of diverse abilities, ages, and backgrounds.Kelly, L., & Matthews, A. (2014)
	Consumer Barrier	Psychological, economic, awareness and usability challenges that limit customer adoption of immersive technologies.Sheth, J. (2021)
Demographic Characteristics	Gender	Gender of the respondent (Male/Female/Others)
	Age	Age of the respondent (18-40/41-60/60 Above)
	Educational Qualifications	Educational Qualifications (SSLC/Diploma/Degree/Masters/Professional Degree/Ph.D)
	Year of Experience	Year of Experience (1-3 /4-7/8-10/10 Above)
	Position/Designation	Position of the respondents(Owner/Manager/Franchise Partner/Others)
Retail Characteristics	Retail Format	Type of retail (Brick and Mortar/E-Commerce or M.Commerce/Omni-channel)
	Annual Turnover	Annual income from retail (50 Lakhs -1 crore/1 crore-5 crore/5 crore- 10 crore/Above 10 crore)
	Location	Location of the Retail Outlet (Bengaluru/Mumbai/Delhi NCR/ Hyderabad/Pune/ Chennai/Ahamedabad/Indore/Jaipur/ Kochi/Coimbatore/Bubaneswar)
	Category of Retail	Retail Category of Business (Apparels and Fashions/ Electronics and Gadgets/ Grocery and FMCG /Furniture and Home Décor/ Beauty and Health care/ Others)

4.10 Pilot Study

A pilot study is the preliminary and the most comprehensive study before conducting actual research . For this purpose a pilot study was conducted with model questionnaire including all the eight constructs of opportunities and challenges of Immersive commerce was prepared and

administered to 30 (Thirty) E-retailers of Kochi and Coimbatore, who are engaged the field of Immersive Commerce and on a random basis. The collected data along with the questionnaire was submitted before the experts. As per the opinion of experts the redundant questions in the questionnaire were removed After the pilot study appropriate modifications were incorporated in to the questionnaire for final data collection.

4.11 Data Cleaning

After completion of data collection data cleaning procedure were carried out to identify missing responses, duplications, inconsistencies and response biases. (Sauders et al, 2019). A total of 402 responses were collected, out of which 390 valid and usable responses were retained. The minimum sample size needed at a total of 384 (Cochran Formula,) but 5% of the responses was increased by considering non sampling errors.

4.12 Test of Normality

Normality assumptions are applied to ensure that the dataset follows a pattern close to a normal distribution. Testing for normality is a crucial step in social science research, particularly when applying parametric test such as correlation analysis, regression, factor analysis, and Structural Equation Modeling (Hair et al., 2019). In this study, the **characteristics** of the collected data were assessed using **Skewness** and **Kurtosis** values.

The skewness values for all items were found to be within the acceptable threshold of -2 to +2, and the kurtosis values were within the range of -7 to +7. (Hair, J. et al., 2010) and (Byrne, B. M., 2010). This range indicates no severe deviation from normality. Hence, the data can be considered as normally distributed and suitable for parametric statistical analyses. The following table shows Skewness and Kurtosis value.

Table 4.4

Skewness and Kurtosis Values

Item	Skewness	SE	Kurtosis	SE		Item	Skewness	SE	Kurtosis	SE
EE1	0.41	0.12	-1.842	0.25		SG3	-1.573	0.12	1.214	0.25

EE2	0.41	0.12	-1.842	0.25		SG4	-0.767	0.12	-0.951	0.25
EE3	0.082	0.12	-2.004	0.25		CRet1	0.288	0.12	-0.652	0.25
EE4	0.388	0.12	-1.859	0.25		CRet2	0.278	0.12	-0.634	0.25
PP1	0.773	0.12	-1.194	0.25		CRet3	0.345	0.12	-0.678	0.25
PP2	0.711	0.12	-1.296	0.25		CRet4	0.301	0.12	-0.644	0.25
PP3	0.14	0.12	-1.689	0.25		TA1	0.392	0.12	-0.77	0.25
PP4	0.635	0.12	-1.042	0.25		TA2	0.359	0.12	-0.683	0.25
FC1	0.399	0.12	-1.85	0.25		TA3	0.332	0.12	-0.745	0.25
FC2	0.443	0.12	-1.813	0.25		TA4	0.452	0.12	-0.767	0.25
FC3	0.231	0.12	-0.865	0.25		IC1	0.421	0.12	-1.832	0.25
FC4	0.35	0.12	-1.562	0.25		IC2	0.037	0.12	-0.842	0.25
TC1	0.413	0.12	-0.672	0.25		IC3	0.007	0.12	-1.716	0.25
TC2	0.435	0.12	-0.655	0.25		IC4	0.399	0.12	-1.85	0.25
TC3	0.474	0.12	-0.646	0.25		GP1	0.556	0.12	-1.7	0.25
TC4	0.35	0.12	-0.69	0.25		GP2	0.702	0.12	-1.114	0.25
IB1	0.319	0.12	-0.738	0.25		GP3	0.393	0.12	-1.523	0.25
IB2	0.247	0.12	-0.619	0.25		GP4	0.549	0.12	-1.346	0.25
IB3	0.286	0.12	-0.687	0.25		FR1	-0.028	0.12	-0.624	0.25
IB4	0.328	0.12	-0.724	0.25		FR2	0.361	0.12	-1.553	0.25
CR1	0.094	0.12	-1.844	0.25		FR3	0.105	0.12	-1.841	0.25
CR2	-0.323	0.12	0.206	0.25		FR4	0.432	0.12	-1.823	0.25
CR3	-0.347	0.12	-0.228	0.25		OPR1	0.421	0.12	-1.832	0.25
CR4	-0.028	0.12	-0.624	0.25		OPR2	0.421	0.12	-1.883	0.25
PV1	0.556	0.12	-1.7	0.25		OPR3	0.356	0.12	-1.589	0.25
PV2	0.702	0.12	-1.114	0.25		OPR4	-0.098	0.12	-0.677	0.25
PV3	0.393	0.12	-1.523	0.25		SR1	0.378	0.12	-0.643	0.25
PV4	0.549	0.12	-1.346	0.25		SR2	0.301	0.12	-0.718	0.25
CE1	0.48	0.12	-0.697	0.25		SR3	0.442	0.12	-0.708	0.25
CE2	0.346	0.12	-0.692	0.25		SR4	0.461	0.12	-1.832	0.25
CE3	0.389	0.12	-0.801	0.25		IN1	0.421	0.12	-1.867	0.25

CE4	0.353	0.12	-0.663	0.25		IN2	0.377	0.12	-1.853	0.25
RL1	0.44	0.12	-0.659	0.25		IN3	0.033	0.12	-1.85	0.25
RL2	0.458	0.12	-0.651	0.25		IN4	0.399	0.12	-0.682	0.25
RL3	0.483	0.12	-0.644	0.25		CB1	0.325	0.12	-0.659	0.25
RL4	0.359	0.12	-0.689	0.25		CB2	0.354	0.12	-0.714	0.25
SG1	-0.372	0.12	-0.763	0.25		CB3	0.342	0.12	-0.662	0.25
SG2	-0.684	0.12	-1.208	0.25		CB4	0.424	0.12	-0.662	0.25

4.13. Reliability test

The Reliability test was conducted to measure the internal consistency, stability, and dependability of a scaled statement, based on the variables determined in the study. Cronbach's alpha tests is used to evaluate the reliability of the measurement instrument .This coefficient falls within the range of zero to one. To meet the reliability criterion, a Cronbach's alpha value of 0.7 or above is needed. As shown in , the α ranges from 0.786 to 0.946, which is higher than the recommended threshold of α = 0.70. (Nunnally & Bernstein, 1994) Thus, all the 19 constructs in the current research satisfy the Cronbach alpha, and the reliability in this study shows fair stability and consistency.

Confirmatory Factor Analysis was conducted using AMOS to validate the measurement structure. CFA adopted for the assessment of **convergent** and **discriminant validity.** Convergent validity was evaluated using **Average Variance Extracted (AVE)** and **Composite Reliability (CR).** The AVE values for all constructs were found to exceed the acceptable threshold of **0.50,** indicating that more than half of the variance in each construct is explained by its observed indicators (Fornell & Larcker, 1981). At the same time, CR values were greater than **0.70,** ensuring adequate construct reliability beyond internal consistency (Hair et al., 2019).

Table 4.5

Reliability Statistics

Sl.No	Construct	No.of Items	Cronbach Alpha
1	Experiential Enhancement	4	0.946
2	Product Positioning	4	0.896
3	Financial Constraints	4	0.845
4	Tech-related Constraints	4	0.864
5	Infrastructure Blockage	4	0.897
6	Consumer Readiness	4	0.871
7	Customer Perceived Value	4	0.874
8	Consumer Engagement	4	0.867
9	System Reliability	4	0.866
10	Sales Growth	4	0.786
11	Customer Retention	4	0.889
12	Trend Adaptation	4	0.896
13	Innovation Capability	4	0.912
14	Growth Potential	4	0.874
15	Financial Risk	4	0.932
16	Operational Risk	4	0.918
17	Security and Privacy Risk	4	0.877
18	Inclusivity	4	0.941
19	Consumer Barrier	4	0.874

4.14 Validity Measurement

Discriminant validity was assessed using the **Fornell–Larcker Criterion**, which requires that the square root of AVE for each construct must be greater than its correlation with other constructs. This condition was satisfied across all construct pairs, demonstrating that each variable was distinct and measured a unique conceptual domain (Fornell & Larcker, 1981). In

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addition, **factor loadings** for individual items were reviewed and found to be above the acceptable level of **0.60,** indicating that there is a strong relationship between observed variables and their underlying constructs.

Collectively, the reliability and validity assessment shows that the measurement scale used in this study is so accurate, consistent and valid. The items were statistically sound and theoretically aligned, and, thereby confirming that the data provide strong foundation for conducting hypotheses testing and Structural Equation modeling.s

4.15 Period of study

The period of data collection extended from January 2024 to June 2024. During the period, questionnaire were distributed through digital survey distribution and the responses were retrieved from retail organizations across the various categories of retail all over India. The researcher ensure the sufficient time for participants engagement and responses validation. (Creswell & ,Creswell 2018)

4.16 Conclusion

The methodology framework in exploring opportunities, challenges, customer loyaty, business performance has been justified and defended by this chapter. This means the potentials and risk of implementation of the immersive commerce into the future of the Modern Indian retail sector. The deductive type of research and the positivist philosophical orientation offered the systematic framework of hypothesis testing through the quantitative data (Creswell and Creswell, 2018). The systematic nature of the responses of the retail organizations was collected in a systematic manner, as the use of the cross-sectional survey technique was implemented and the Proportionate Stratified Sampling technique was used to get a restricted group of the surveyed retail formats and business sizes (Saunders, Lewis, and Thornhill, 2019). The good sample of 390 valid answers received was sufficient to be analysed using multivariate statistics.

The structured questionnaire provided the opportunity to introduce the complex conceptual constructs into the operational variables and, thus, the adaptivnesss in the adoption of immersive commerce was fully measured. The study also improve data integrity by scrubbing a data by pilot testing of data to refine data, test of normality and test of randomness used to ensure that

the respondents were independent. The psychometric adequacy of the measurement model was evaluated by the help of Cronbach Alpha, Composite Reliability, Average Variance Extracted, factor loading and measuring the discriminant validity measures (Hair et al., 2019). In addition, the evaluation of the Common Method Bias due to the Single-Factor Test of Harman proved that the outcomes were not caused due to the methodological artifacts (Podsakoff, MacKenzie, and Podsakoff, 2012).

36 The results of the SPSS descriptive and inferential statistics combined with AMOS Confirmatory Factor Analysis and Structural Equation Modelling strengthened the rigor of the analysis and allowed using the complex structure relationships between constructs to be analyzed. The strategies embraced on the research on this chapter make the results in it believable, sound, and theoretically developed.

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"OPPORTUNITIES AND CHALLENGES OF IMPLEMENTING IMMERSIVE COMMERCE STRATEGY IN MODERN INDIAN RETAILING"

ABSTRACT

Immersive Commerce integrates advanced digital technologies such as Augmented Reality (AR), Virtual Reality (VR), 3D visualization, AI, and Metaverse elements to create interactive and experiential shopping environments. In the Indian retail landscape, where digital adoption and consumer expectations are rapidly evolving, immersive commerce presents a promising pathway to enhance customer engagement and strengthen competitive positioning. However, despite its potential, adoption remains limited due to financial, technological, infrastructural, and consumer readiness challenges. This study examines the opportunities and challenges in implementing immersive commerce within modern Indian retailing, focusing on retailers' perceptions toward customer experience improvement, business performance, future innovation capability, and associated risks. A descriptive research approach was adopted, and data was collected from 390 retailers across Tier-1 and Tier-2 retail hubs using proportionate stratified sampling. Analytical tools including Descriptive Statistics, Regression, ANOVA, Multi variance Analysis, Factor Analysis, and Structural Equation Modeling (SEM) were applied. The findings indicate that immersive commerce significantly enhances experiential engagement, product presentation, and short-term sales growth, demonstrating its strategic value in improving customer decision-making and in-store experience. Customer loyalty, however, is primarily influenced by engagement and system reliability rather than perceived value alone. Innovation capability and growth potential suggest that immersive commerce may shape long-term retail transformation. Conversely, high investment costs, lack of technical expertise, inadequate infrastructure, and limited consumer familiarity act as major barriers. Operational risks, inclusivity concerns, and data security issues further influence retailers' implementation decisions. The study concludes that immersive commerce can provide a competitive advantage in Indian retailing if adopted gradually with improved infrastructure, staff training, customer awareness and technological support. The research provides insights for retailers, policymakers, and technology developers in designing feasible, inclusive and sustainable immersive retail strategies.

Keywords: Immersive Commerce, Indian Retail, Retailers' Perceptions, Customer Engagement, Innovation, Challenges.

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പ്രബന്ധത്തിന്റെ തലക്കെട്ട്

“ആധുനിക ഇന്ത്യൻ റീട്ടെയിലിംഗിൽ ഇമ്മേഴ്സീവ് കൊമേഴ്സ് തന്ത്രം നടപ്പിലാക്കുന്നതിന്റെ അവസരങ്ങളും വെല്ലുവിളികളും”

സംഗ്രഹം

ഓഗ്മെന്റഡ് റിയാലിറ്റി (AR), വെർച്വൽ റിയാലിറ്റി (VR), 3D വിഷ്വലൈസേഷൻ, AI, മെറ്റാവേഴ്സ് തുടങ്ങിയ സാങ്കേതികവിദ്യകളുടെ സഹായത്തോടെ ഉപഭോക്താക്കൾക്ക് കൂടുതൽ സംവേദനാത്മകവും അനുഭവപരവുമായ ഷോപ്പിംഗ് അനുഭവം നൽകുന്ന നവീന ആശയമാണ് ഇമ്മേഴ്സീവ് കൊമേഴ്സ്. ഡിജിറ്റൽ സാങ്കേതികവിദ്യകൾ വേഗത്തിൽ വളരുന്ന ഇന്ത്യൻ റീട്ടെയിൽ മേഖലയിലെ ഉപഭോക്തൃ ഇടപെടലും ബിസിനസ് മത്സരക്ഷമതയും വർദ്ധിപ്പിക്കാൻ ഈ സാങ്കേതിക വിദ്യയ്ക്ക് വലിയ സാധ്യതയുണ്ട്. എന്നാൽ സാമ്പത്തിക ചെലവുകൾ, സാങ്കേതിക പരിമിതികൾ, അടിസ്ഥാന സൗകര്യങ്ങളുടെ അഭാവം, ഉപഭോക്തൃ സന്നദ്ധത കുറവ് തുടങ്ങിയ വെല്ലുവിളികൾ കാരണം ഇതിന്റെ പ്രായോഗിക ഉപയോഗം ഇപ്പോഴും പരിമിതമാണ്.ആധുനിക ഇന്ത്യൻ റീട്ടെയിലിംഗിൽ ഇമ്മേഴ്സീവ് കൊമേഴ്സ് നടപ്പിലാക്കുന്നതിലെ അവസരങ്ങളും വെല്ലുവിളികളും പഠിക്കുകയാണ് ഈ ഗവേഷണത്തിന്റെ പ്രധാന ലക്ഷ്യം. ഉപഭോക്തൃ അനുഭവ മെച്ചപ്പെടുത്തൽ, ബിസിനസ് പ്രകടനം, നവീകരണ സാധ്യതകൾ, അപകടസാധ്യതകൾ എന്നിവയെക്കുറിച്ചുള്ള റീട്ടെയിലർമാരുടെ ധാരണകളെ പഠനം പ്രത്യേകം പരിശോധിക്കുന്നു. വിവരണാത്മക ഗവേഷണരീതിയാണ് സ്വീകരിച്ചിരിക്കുന്നത്. ടയർ-1, ടയർ-2 നഗരങ്ങളിലെ 390 റീട്ടെയിലർമാരിൽ നിന്ന് ആനുപാതിക സ്ട്രാറ്റിഫൈഡ് സാമ്പിംഗ് രീതിയിൽ ഡാറ്റ ശേഖരിച്ചു. ഡാറ്റ വിശകലനത്തിനായി ഡിസ്ക്രിപ്റ്റീവ് സ്റ്റാറ്റിസ്റ്റിക്സ്, റിഗ്രഷൻ, ANOVA, ഫാക്ടർ അനാലിസിസ്, സ്ട്രക്ചറൽ ഇക്വേഷൻ മോഡലിംഗ് (SEM) തുടങ്ങിയ ഉപാധികൾ ഉപയോഗിച്ചു.ഗവേഷണഫലങ്ങൾ പ്രകാരം, ഇമ്മേഴ്സീവ് കൊമേഴ്സ് ഉപഭോക്തൃ ഇടപെടലും ഉൽപ്പന്ന അവതരണവും വിൽപ്പന വളർച്ചയും മെച്ചപ്പെടുത്തുന്നതിൽ ഗണ്യമായ സ്വാധീനം ചെലുത്തുന്നു. ഉപഭോക്തൃ വിശ്വാസം, ഇടപെടൽ, സിസ്റ്റത്തിന്റെ വിശ്വാസ്യത എന്നിവ ഉപഭോക്തൃ വിശ്വസ്തതയെ ശക്തിപ്പെടുത്തുന്ന പ്രധാന ഘടകങ്ങളാണെന്ന് കണ്ടെത്തി. കൂടാതെ, നവീകരണ ശേഷിയും ഭാവി വളർച്ചാ സാധ്യതകളും ഇന്ത്യൻ റീട്ടെയിൽ മേഖലയിലെ ദീർഘകാല പരിവർത്തനത്തിന് ഇമ്മേഴ്സീവ് കൊമേഴ്സ് സഹായകരമാകുമെന്ന് സൂചിപ്പിക്കുന്നു. അതേസമയം, ഉയർന്ന നിക്ഷേപച്ചെലവ്, സാങ്കേതിക വൈദഗ്ധ്യക്കുറവ്, അടിസ്ഥാന സൗകര്യങ്ങളുടെ അപര്യാപ്തത, സുരക്ഷാ ആശങ്കകൾ തുടങ്ങിയവ പ്രധാന വെല്ലുവിളികളായി തുടരുന്നു.അതിനാൽ, അടിസ്ഥാന സൗകര്യ വികസനം, സ്റ്റാഫ് പരിശീലനം, ഉപഭോക്തൃ അവബോധം, സാങ്കേതിക പിന്തുണ എന്നിവ ഉറപ്പുവരുത്തിയാൽ ഇന്ത്യൻ റീട്ടെയിലിംഗിൽ ഇമ്മേഴ്സീവ് കൊമേഴ്സിന് മികച്ച മത്സരാധിഷ്ഠിത നേട്ടം നൽകാൻ കഴിയുമെന്ന് പഠനം നിഗമനം ചെയ്യുന്നു.

കീവേഡുകൾ: ഇമ്മേഴ്സീവ് കൊമേഴ്സ്, ഇന്ത്യൻ റീട്ടെയിൽ, ഉപഭോക്തൃ ഇടപെടൽ, നവീകരണം, വെല്ലുവിളികൾ.

CHAPTER 1

INTRODUCTION

- *Background of the Study*
- *Research Problem*
- *Objectives*
- *Conceptual Model*
- *Hypotheses of the Study*
- *Operational Definitions of the Terms/Concepts*
- *Significance of the Study*
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- *References*

Anoop, P. Opportunities and challenges of implementing immersive commerce strategy in modern Indian retailing. Thesis.2026. Farook College (Autonomous), University of Calicut.

1.1 Background of the Study

Retail sector is a vital segment of contemporary economies as it is the main point of interaction between the production system and consumption markets. Retailers are strategically important in terms of ensuring that goods and services are distributed efficiently, creating workplaces, enhancing entrepreneurship, and adding to the national income and gross domestic product (GDP) to a significant extent (Deloitte, 2020; Reardon et al., 2019). Even more so in emerging economies like India, retailing plays even more significant role in terms of scale, varieties, and ability to absorb high number of workforce. This is due to the fact that the Indian retail market has undergone significant change in the last 20 years, which has been influenced by economic liberalization, urbanization, increasing disposable incomes, demographic changes, and the fast-paced technological development (Mukherjee and Patel, 2021).

Historically, Indian retailing took the form of unorganized physical formats, which are dominated by small family owned stores, lack of technological penetration and localized operations. Although these conventional formats are still prevailing together with the contemporary retail, the industry has experienced gradual growth of structured retail chains, supermarkets, shopping malls, specialty shops, and large-format retailers (PwC, 2022). In parallel to this structural transformation also digital technologies have transformed the retail activities, as retailers can now implement e-commerce, mobile commerce and omnichannel strategy. These changes represent the strategic attempts of retailers to be more efficient in their operations, increase their market coverage, and react better to the growing rivalry (Verhoeff et al., 2015).

Competition in the modern world of retail is no longer concentrated around price and product range but it has grown to include experience creation, service quality, technological sophistication and innovation capability. The retailers have come to appreciate the fact that sustainable competitive advantage is realized with the differentiation strategy that contributes to efficient engagement and value creation instead of, solely, cost leadership (Grewal et al., 2020). Digital transformation has therefore become a strategic need of retailers that wish to stay relevant in the fast changing markets. Artificial intelligence, big data analytics, Internet of Things (IoT),

and immersive technologies are some of the technologies that are increasingly being applied in retail operations to facilitate decision-making, personalization, and experience (Pantano et al., 2022).

Immersive commerce is one of the new digital technologies that have become prominent on the list of next-generation retail approaches that have significant implications on retailers. Immersive commerce is the application of immersive technologies (augmented reality (AR), virtual reality (VR), mixed reality (MR), extended reality (XR), and three-dimensional (3D) visualization) to design an interactive and experiential retail experience (Flavian et al., 2019). According to the retailer standpoint, immersive commerce is a business mechanism that supports product display, brand distinction, operation performance, and incorporation of both physical and digital retail environments. In contrast to the traditional digital interfaces based on the intensive use of the static images and texts, immersive commerce allows retailers to provide the realistic simulation, interactive demonstrations, and digitally enhanced store settings that are highly resembling the physical retail experience (Hilken et al., 2017).

In contemporary Indian retailing where retailers exist in a heterogeneous and competitive ecosystem, the applicability of immersive commerce is especially strong. The Indian retailers serve multiple markets, whose geographic differences, infrastructural differences, and technological maturity differences are varying. Indian retailing giants and online stores have started to implement immersive apps, like with AR-based virtual product display, digital-enhanced in-store generating, and virtual showrooms to reinforce their omnichannel models (BCG, 2021). These initiatives are a strategic intent of retailers to enhance customer interaction, optimise merchandising performance and differentiate the experience in a saturated market place.

Strategically, the immersive commerce can provide retailers with a number of opportunities. It allows greater product positioning as it allows visualizing product characteristics and exploring them actively, thus minimizing product evaluation ambiguity (Javornik, 2016). Experiential improvement could be provided through

immersive interfaces that develop engaging environments that foster exploration and extended interaction, which may have a positive impact on the results of retail performance (Poushneh and Vasquez-Parraga, 2017). Immersive technologies also allow retailers to facilitate better planning of store layouts, enhance online and offline channel integration, and visual merchandising (Pantano and Vannucci, 2019). Together, these possibilities can make immersive commerce a strategic resource that can be used to facilitate innovation, differentiation, and long-term growth.

Notwithstanding these, integrating immersive commerce poses a tremendous challenge to retailers especially in the developing markets like India. One of the most important inhibitors is financial restraints. Immersive technologies are expensive in terms of hardware and software, as well as infrastructure and trained staff to develop, roll out and maintain immersive technologies. Scalability, long-term financial sustainability, and return on investment (ROI) are some of the aspects that retailers tend to be uncertain about, thus impeding adoption decisions (Huang and Liao, 2017). These obstacles are more acute in the case of small and medium-sized retailers that have limited capital resources.

There are also technological limiting factors that make the implementation of immersive commerce difficult. The retailers are often faced with challenges of integrating systems, compatibility with the existing information systems, and dependence on third parties as information technology providers. Poor connectivity to more sophisticated immersive devices, unreliable Internet connectivity, and high technological change are also a threat (Roggeveen & Sethuram, 2020). Furthermore, deficiency of internal technical knowledge and standardized implementation structures may be a barrier to successful implementation and continuity.

The problem of infrastructure is also decisive on the part of the retailer. Not all physical retail spaces are suitable to having immersive installations, either because of the physical space, layout, or insufficient power and connectivity infrastructure. Differences in the infrastructural development of urban and semi-urban areas also limit the consistency of their application to retail networks (KPMG, 2021).

The other important predeterminer of implementing immersive commerce is the organizational readiness. Mainstream retailers are required to synchronize immersive activities with organizational goals, create internal capabilities, and instill a culture of promoting innovation and technology experimentation. The efforts of implementation can be sabotaged by resistance to change, a lack of commitment by the managers and inadequate training of employees (Tornatzky and Fleischer, 1990). Retailers should thus invest in skills development, process redesigning and change management in order to achieve successful adoption.

Alongside the operational challenges, immersive commerce brings forth a new sphere of risk, which the retailers will have to address proactively. The origins of financial risks are large initial investments and unpredictable performance, and the origins of operational risks are technical failure, unavailability of the system, and complexity of maintenance (Pantano et al., 2022). Security and privacy threat are also high because immersive platforms are usually associated with data intensive applications and online interactions. To reduce these risks, retailers need to provide a strong governance system, cyber security, and compliance structure (Martin et al., 2020).

However, future prospects of immersive commerce can be significant to the retailers in contemporary Indian retailing. With the enhancement of technology infrastructure, the implementation cost will decrease, and the organizational ability will be in maturity, immersive commerce is likely to become accessible and strategically feasible. A successful adoption of immersive technologies into the business models of the retailers can help them increase the ability to innovate, competitive advantage, and sustainable performance results (Grewal et al., 2020). Immersive commerce is also compliant with the larger digital transformation programs, which serve the long-term strategic planning of retailers.

Academically, the available studies on immersive commerce have mainly addressed consumer perceptions and technological aspects, but only a few studies have been conducted on the retailer-oriented standpoints. Empirical research on immersive commerce as a strategic, operational, and organizational phenomenon is still

significantly lacking in the perspective of retailers, especially in the background of the emerging markets like India. This gap needs to be approached to come up with extensive theoretical frameworks and managerial perspectives.

To that end, the current study takes a retailer-based approach to analyze the possibilities and issues related to the execution of the immersive commerce strategies in the contemporary Indian retailing. The study aims at providing substantial contributions to the academic literature by making appropriate contributions to organizational capabilities, strategic outcomes, retailer perceptions, and contextual constraints in order to provide practical insights to both retailer decision-makers and policymakers. This chapter provides the contextual and conceptual background of the study and logically the identification of the research problem in the next section.

1.2 Research Problem

The immersive commerce is exposed to the international markets, specifically the developed markets, but the Indian retail market has not been fully explored with regard to strategic application. It focus on the Western countries, to a large scale, occupies the available literature, which ensures a significant gap in the familiarity with the peculiarities of the opportunities and challenges of Indian retailers. This lack of localized empirical research causes concern to the retail businesses as they are trying to adopt and get acquainted with immersive commerce and in particular, in terms of experiential enhancement, product positioning, financial, technological and infrastructural readiness and its effects to the shopping experience and business performances in the Indian urban and rural markets. Without bridging this gap, the image of Indian retailers as the engine of the global digital trends will crash, and the latter can expect a decrease in the customer interactions, loss of the competitive advantage, and little market growth. Besides this, retailers are able to invest blindly, without particular research and knowledge, leading to low returns and disintegrated digitalization. In this way, the suggested research work will critically analyze the opportunities and challenges of implementing immersive commerce in Indian retail to fill the knowledge gap that exists and help in the further planning with the relevant implications. Therefore, it can be concluded that the literature review suggests the following research questions:

1. What are the implications of the opportunities on the successful implementation of immersive commerce in Indian retail?
2. How does the Customer Loyalty influence the Immersive Experience in retail environment?
3. How far are reliability and consumer engagement determined to achieve success in the adoption of immersive commerce technologies?
4. What is the role of immersive commerce in business performance of retailers in terms of sales improvement, retention of customers, and keeping up to trends?
5. How does innovation capability as well as growth potential influence the way in which the retailers view the future of immersive commerce and the effective application of immersive commerce?
6. How perceived challenges (financial, technological, infrastructural, readiness-related) and risk-based affect the successful implementation of immersive commerce among Indian retailers?

1.3 Objectives

The fundamental goal of the current study is to analyse the numerous factors that influence the successful Implementation of Immersive Commerce. To achieve this primary objective, the following objectives have been established:

1. To examine the retailers' perceived opportunities that facilitates the successful implementation of immersive commerce in the retail sector.
2. To assess retailers' perception towards Customer Loyalty in Immersive Commerce.
3. To analyse the impact of immersive commerce on retail business performance.

4. To identify the future potentials of immersive commerce in reshaping their innovation and growth.

5. To identify key operational and strategic challenges faced by retailers in implementing immersive commerce.

6. To analyse the risks and barriers perceived by retailers in adopting Immersive commerce.

1.4 Conceptual Model

The central outcome of the research, i.e., Successful Implementation of Immersive Commerce in Modern Indian Retailing, will be placed in both aspects of the positive impact and factors of the negative impact factors of the theoretical framework of the research. According to this model, there are six thematic variables, Opportunities, Customer Loyalty, Business Performance, Future Potentials, Challenges, and Risks and Barriers.

Figure 1.1

The Conceptual Model



The factors of opportunities viz., Experiential Enhancement and Product Positioning which enable retailers to make the shopping locations more exciting and differentiated are on the positive side. As a result of these advancements is shaped by the Perceived Value, Customer Engagement and Reliability, the Customer Loyalty is framed. Enhanced Customer Loyalty is another way of strengthening Business Performance that can be elicited by Sales Growth, Customer Retention, and Trend Adaptation. Moreover, Future Potential including Growth Potential and Innovation Capability has a strategic value after which retailers can obtain in the scenario of implementation of immersive commerce technologies.

In short, the model depicts that Opportunities drive the successful implementation of immersive commerce, which in turn strengthens customer loyalty which improves business performance ultimately contributing to greater future potentials.

The model also considers the fact that Challenges that may impede the adoption are substantial and numerous, such as Financial Constraints, Tech-related Constraints, Infrastructure Blockages, and Customer Readiness Issues. Also, among the Risks and Barriers, there will be Financial Risks, Operational Risks, Security and Privacy Concerns, Inclusivity and Consumer Barriers. All these factors are interlinked and collectively contribute to implement immersive technologies.

This model suggests that the positive elements of influence positively influence the probability to achieve successful implementation of immersive commerce, and it is the negative elements that have a negative impact on probability of its implementation. These contributing and hindering forces enhance the success of immersive commerce and the strategies thus initiated can be incorporated into the Indian retail environment.

1.5 Hypotheses of the Study

Thus, the following hypotheses were formulated in the study.

H1: There is an association between Experiential Enhancement and Product Positioning.

H2: Experiential Enhancement and Product Positioning has significant positive relationship with Successful Implementation of Immersive Commerce.

H3: Customer loyalty in Immersive Commerce is significantly influenced by perceived value, customer engagement, and reliability as perceived by retailers.

H4: There is significant multivariate effect of Successful Implementation of Immersive Commerce (SIIC) on the business performance outcomes (Sales Growth, Customer Retention, and Trend Adaptation).

H5: There is a significant relationship in Retail characteristics across Growth Potentials and Innovation Capability

H6: There is causal relationship between Successful Implementation of Immersive Commerce with Opportunities, Customer Loyalty, Business Performance and Future Potentials of Immersive Commerce.

H7: There is a significant difference in the perception of operational and strategies challenges in implementing immersive commerce across different demographic groups of retailers

H8: There is a significant difference in the perception of risks and barriers in adopting immersive commerce across different demographic groups of retailers.

H9: Negative impact factors have a significant negative effect on the Successful Implementation of Immersive Commerce in modern Indian retailing.

1.6 Operational Definitions of the Terms/Concepts

The following terms/concepts were used in the study as briefly explained below;

1.6.1 Modern Indian Retailing

It is the systematized, technology-based, and customer-centric retail ecosystem that combines both digital and physical platforms to bring continuous shopping experiences through post-pandemic period.

1.6.2 Strategy

The Immersive Commerce provides an opportunity to Indian retailers: it increases the customer satisfaction, provides virtual try-ons, and improves the online conversion rates.

1.6.3 Retailer

The Retailer means any retail seller who is in adoption or familiarisation with immersive technologies like Augmented Reality (AR), Virtual Reality (VR),Mixed Reality, Artificial Intelligence (AI),3D product visualization or metaverse to engage customers on diversified shopping experience.

1.6.4 Opportunities

It comprises the factors viz., Experiential Enhancement and Product Positioning which measure the growth of successful implementation of Immersive Commerce.

1.6.5 Customer Loyalty

It indicates that retailer's perception towards customer perceived value, customer engagement and system reliability.

1.6.6 Perceived Value

Customer perceived value is the way that commerce is immersive and customers are more knowledgeable, having more pleasure and confidence in their decision to buy. It is assumed that increased perceived value will translate to increased satisfaction, loyalty, and repeat patronage.

1.6.7 Customer Engagement

Customers perceive customer engagement as the degree of active interaction and engagement that they establish by experience the immersive commerce setting. It is seen that increased engagement will lead to customer attention, time taken to shop and emotional attachment to the brand.

1.6.8 System Reliability

The term system reliability can be used to describe the ability of the immersive commerce technologies to operate successfully and without error when interacting with customers. Reliable systems are regarded by retailers as the key to establishing the customer confidence and the secured shopping right through.

1.6.9 Successful Implementation of Immersive Commerce (SIIC)

Successful Implementation of Immersive Commerce is the sum total of all the positive impact factors and negative impact factors that significantly affect the implementation of immersive commerce.

Positive Impact factors are those factors that support the successful implementation of Immersive commerce is considered as Positive Impact factor. The factors that lead the successful implementation of immersive commerce are opportunities, customer loyalty, and business performance and growth potentials. Whereas, the negative impact factors are the factors that hinder the successful implementation of immersive commerce like challenges, risks and barriers.

1.7 Significance of the Study

The relevance of the phenomenon of immersive commerce concerning digital transformation of the retail environment in India is covered by the current literature. Since retailing the world over is adopting the new advanced technologies that are comparable with the Augmented Reality (AR), Virtual Reality (VR) and Mixed Reality (MR) that creates an explicit deep immersion of the learning process through the shopping, the current study focuses on the role that the new technologies play in creating an engaging, experiential and people oriented shopping experience particularly in India where the retailing industry is highly diversified and complex. India boasts of one of the most appealing consumer markets with a high population of tech savvy and high penetration of smart phones with the potential of switching to the immersive commerce. And at the same time the retail sector of the country is also characterized by very accentuated differences of structured forms and differences of unstructured forms, a divide between urban and rural, and an

extravagance of national substratum and fiscal limitation all which make it very specifically down to earth to further implementation but which makes it very specifically potentially momentous.

The study scope will then be to determine not only the opportunities, i.e. the relationship with the consumers, the enhanced visualisation of the product and the enhanced brand experiences, but also the practical constraints, i.e. the funds available of the technology, the desire to work with the technology by both the retailer and the consumer, the infrastructure of the digital technology and finally the obstacle to the adoption of the technology. These outcomes will provide retail stake holders, including store owners, retail administrators, technology producers and policy makers in the nation with a concept of challenges of the immersive commerce in India. Remembering the sequential research of the variables, the development of experience to financial and technological limitations of consumer acceptance behaviors, the impact of the immersive experiences to the consumer satisfaction and business performance, the research is a contribution to the existing academic discussion. Empirically, it sheds light on how such a concept of immersive commerce can be a potentially revolutionary way of changing the strategies and creating innovations and competitive advantage in the Indian retail and also the places where government support, digital inclusion and government funds of infrastructure can provide an extraordinary payoff to the timeliness of adoption, particularly in smaller and medium sized retailers. The current study will enlighten the empirical summary of immersive commerce, and, therefore, address queries that are founded on the perspective of the future of consumer demand, retail innovation and the dynamics of commerce digitalization in India in general. The convergence of technological, behavioural, operational and infrastructural knowledge is developing a conceptual framework through which the research can use the same to inform the current and future scopes of the research in the emerging economies hence a bridge of an academic practical gap being bridged. Therefore, the results are not only timely and relevant, but also tactical that is much needed by the policy makers, both the retailers and technologists in India to chart out a digital future of business.

1.8 Scope of the Study

This is a wide and comprehensive research that deals with psychological, technological, economic, and cultural dimensions of the immersive commerce in the Indian retail business all are captured in this comprehensive and detailed study. It attempts to provide a detailed description of the history of immersive commerce, its opportunities and issues in its application in India.

The study has value to add to the existing literature on immersive commerce because it integrates the opinion of various stakeholders and adopts a multidisciplinary approach, The study will also have value to add to the wider debate on immersive commerce since it presents context-related insights that could be used in forming strategies in other emerging markets with similar demographic and technological orientations in Indian Context.

The paper is restricted geographically to the retail sector of India that is considered to be paid attention to IT/Retail Hubs, especially, Tier 1 and Tier 2 cities. The retailer that is on adoption or familiarization with Immersive Commerce is considered to be included in the study.

This paper also finds seven thematic areas in (1) Opportunities of immersive commerce in Indian retail; (2) Customer Loyalty; (3) Impact on business performance; (4) Future Potentials of immersive commerce; (5) Future challenges facing the successful implementation of immersive commerce; (6) Risk and Barriers to the effective implementation of immersive commerce.

1.9 Limitations of the Study

The limitations of the study are as follows.

1.8.1 Limitation in Geographical Scope.

The research is limited on the selected Tier 1 and Tier 2 Indian retail hubs. This could be due to the fact that the findings might not be entirely representative of the retailers in Tier 3 cities, rural market and small unorganized retail environment.

1.8.2 Retailer-Centric Perspective

The study focusses on the retailer's point of view, towards immersive commerce, not from the responses of consumers. Consequently, Consumer Acceptance, Consumer Behaviour, experience or acceptability are not based on the consumer evidence but on the interpretation of the retailer.

1.8.3. Cross-Sectional Character of Information.

A single time-point survey was used in data collection, and this fails to measure the change in perception over time. Therefore, the research is unable to gauge the potential changes in the adoption of immersive commerce with the maturity of technology.

1.8.4 Self-Reported Responses

The research is based on self-reported data, which can be biased by personal elements, organizational bias, social desirability bias, or the willingness of the respondents to disclose internal business facts.

1.8.5 Difference in Technological Exposure.

Retailers can be extremely different in the degree of exposure to immersive technologies. It is possible that retailers who do not have a lot of practical experience provided answers which were guided by expectation and not actual implementation.

1.8.6 Poor Measuring of Real Usage.

Perceived opportunities, challenges, and performance outcomes are evaluated in the study, but actual performance measures, including financial ROI, footfall analytics, or conversion data cannot be measured due to the requirements of confidentiality.

1.8.7 Differences in Technology Adoption Stage.

The adoption of immersive commerce remains immature in India, and most of the respondents have been exposed to pilot implementations. Therefore, the perception can be different as compared to well-established immersive retail settings.

1.8.8 Platform and Tool Diversity

The research fails to distinguish particular immersive platforms (AR, VR, Meta verse, AI-3D configurations). Capabilities differ in a wide range depending on the type of technology and hence certain differences may not be completely represented.

Moreover, the research offers significant information on strategic, operational, and experiential dynamics that affect the process of implementing immersive commerce in the retailing sector in India.

1.10 Chapter Scheme

The research report covers 8 chapters,

Chapter 1 – Introduction

The concept of immersive commerce was developed in this chapter and explains why the concept remains relevant in the current Indian retail industry. It also presents the problem statement that will be driving force behind the research, the main research objectives, that will drive the study and the proposed conceptual model. The joint hypotheses and operational terms that have been defined as well as demonstration of the significance, extent and deficiency of the study are also displayed in the chapter. The chapter concludes with the chapter scheme which expounds how the remaining part of the thesis is going to be organized.

Chapter 2 -Review of Literature

The chapter will give a review of the literature available in the academic and industry on the topic of immersive commerce and its related constructs such as opportunities, challenges, consumer acceptance, business performance, and business potential. The thematization of the review is done in such a way that it follows the evolution of the notion, the pattern of studies and advancements of theories in various situations. The review concludes with research gaps being found to support the reason why the current research was required and gives a platform of what is still unavailable in the body of knowledge existing which supports the hypotheses and conceptual model.

Chapter 3 – Immersive Commerce in Indian Retail - A Theoretical Framework

The theoretical foundation of immersive commerce is provided in this chapter in a very elaborate manner. In discussing its strategic importance to the modern retailing, it clarifies the concept, development and technology environment of immersive commerce in India. In this chapter, the discussion of the Indian retail structure, the forms of immersive commerce, its implementation by the retailers, and the connection between immersive commerce and the modern evolution of retail are also presented. The chapter then wraps up with placing the study within a broader context of technological and retail developmental framework.

Chapter 5 –Research Methodology

This chapter explains the methodological framework that has been taken by the study. It discusses the approach towards the research design: the Research Onion approach, and points out data sources, population, and sampling methods as well as the creation of the instruments. It will involve the pilot study, data cleaning and tools and software that were applied to analyze the data. In addition, it also has randomness, normality, reliability and validity, which ensure methodological rigor. The chapter ends by providing the conclusion that confirms the appropriateness of the process of research that has been implemented.

Chapter 5 – Analysis of Positive Impact Factors Influencing the Successful Implementation of Immersive commerce

The chapter mentions the positive influencing variables that include opportunities, customer loyalty, the rise of business performance and the future trend forecasts. The research consists of demographic profiling of the retailers and analyzing their perceptions of the benefits of immersive commerce. This chapter describes the impacts of immersive commerce upon the experiential value, customer retention and competitive advantage employing pertinent statistical methods. The chapter concludes with the information that was given on the positive drivers to successful adoption.

Chapter 6 –Analysis of Negative Impact Factors influencing the Successful Implementation of Immersive Commerce

The next chapter talks about the negative or constraining factors which involve the financial problems, technical problems, operational problems, infrastructural barriers, security problems, and the problem of customer inclusiveness. The chapter examines how far these problems and challenges have slowed down the pace, performance and adoption of immersive commerce by the Indian retailers. This discussion helps in making articulations of major areas of threat that are important to be responded to using strategic response therefore counterbalancing the benefits articulated in Chapter 5.

Chapter 8 - Summary, Findings and Conclusions

It is a summary of all the other chapters and the key findings that are present in the descriptive and inferential statistical analysis. The findings are made in terms of the objectives and hypotheses of the research. The chapter concludes with reiteration of the effect the study can have on the area of research and how the immersive commerce in Indian retail is known to the real world.

Chapter 9- Recommendations, Implications and Scope to Future Research

The final chapter employs suggestions that can be used in the retailers, policymakers, technology providers and Government bodies to increase the use of immersive commerce. It also gives theoretical and managerial implications of the findings. Finally, the chapter is limited and offers such space where the future research can be expanded thus leaving the field to be subject to further scholarly investigations.

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CHAPTER 2

REVIEW OF LITERATURE

- *Introduction*
- *Source of Literature*
- *Research Gap*
- *Conclusion*
- *References*

Anoop, P. Opportunities and challenges of implementing immersive commerce strategy in modern Indian retailing. Thesis.2026. Farook College (Autonomous), University of Calicut.

2.1 Introduction

The current study is related to the Opportunities and Challenges of implementing immersive commerce in Modern Indian retailing. To contribute the existing body of literature, the researcher conducted review of previous research in Immersive commerce and retail industry with a view to identify the research gaps. A literature review analysis has important role in the research, where it gives guidance and thoughts to the research to identify the research problems based on certain theoretical framework. The review of literature was organized in narrative and thematic methods. But new innovative methods are adopted in the research studies like, bibilometric analysis, meta analysis and systematic literature review. In this study, systematic literature review is used based on the PRISMA. To strengthen the existing literature, the relevant studies into four distinct topics.

1. Opportunities and Future Potentials
2. Challenges, Risks and Barriers
3. Customer Loyalty
4. Business Performance and Growth.

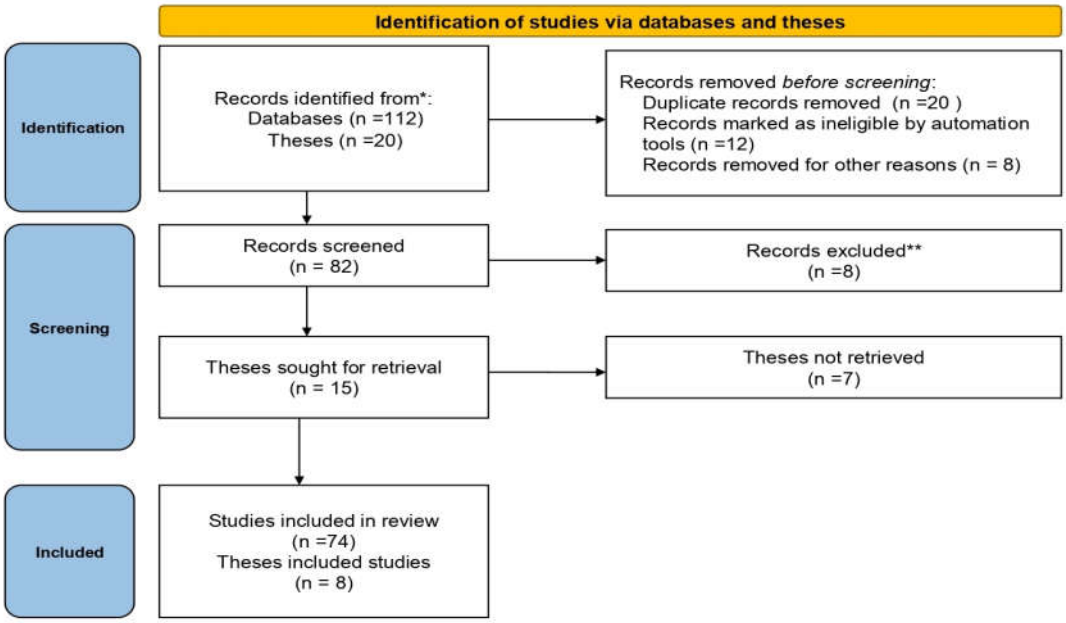
2.2 Source of Literature

The PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) is the method adopted by the researcher to improve the transparency, accuracy and methodology quality to the research. It is a flow diagram that clearly understandable by the research in the process of identification, screening and inclusion of thesis and other records. By offering standardized guidance, PRISMA ensures that systematic reviews are conducted rigorously, reported comprehensively, and remain reproducible for future research (Page et al., 2021).

In the study, the researcher systematically assessed 112 databases and 20 theses aligned with immersive commerce. Inclusion exclusion criteria were applied and finalized 82 relevant studies. The studies were organized based on the various constructs adopted in the study.

Figure 2.1

Flow diagram of PRISMA Literature Review



Compiled by the researcher

On the basis of segregations following reviews were identified. The researcher adopted narrative method to describe the literature review.

Accenture (2023) examined the concept of immersive commerce as part of the metaverse continuum in the retail regarding the executive survey and the case based conference findings that can be found on influential platforms of the global retail technology. The results indicate that the immersive commerce positively impacts the experience dimension as it combines physical and online shops to achieve the interactive shopping and continuous shopping experiences. Accenture suggests that experiential enhancement brings about customer intrigue and a long term engagement and consequently immersive commerce is a grave experience-layer innovation but a transactional application.

Barta, Flavian, and Gurrea (2023) have managed to value the effects of the immersive commerce in Augmented Reality based retail applications. Based on their findings of an examination of data in customer surveys as they employ SEM they

realize that immersive interactivity and vividness are highly significant in mental, emotional and behavioural captivation. The mediation between the immersive experience and the one of loyalty intention mediated by engagement is complete. This research proposes consumer participation in the center of the immersive commerce policies in retail as an outcome in an empirical manner (Journal of Retailing and Consumer Services).

Being the estimate of the impact of the immersive commerce on the work of the entering businesses, BCG (2023) considered the benchmarking data and the illustrations of the world market and the new one. The report arrives at the conclusion that immersive commerce would lead to better performance, i.e. high conversion rates, low returns on products and customer lifetime value. The monetary rewards will, however, be a process that will take a long time to be achieved and will be subject to strategies and operational preparedness. BCG considers immersive commerce as a long-term performance and not a short-run revenue generator.

On the one hand, Beck and Crie (2018) studied the virtual fitting rooms as a type of immersive commerce in stores. Through conducting experiments of juxtaposing conventional e-commerce to VR-based fitting experiences, they find that the latter is much more advantageous in regard to the perceived enhancement of diagnosticity, hedonic value and faith in making a buying decision. The two value perceptions have a direct effect on the purchase intent and exploration. This is an empirical study, which justifies the findings on immersive commerce as one of the value-adding innovations of retailing to reduce the uncertainty and aid to augment the quality of decision-making (Journal of Retailing and Consumer Services).

Papagiannidis, Pantano, See-To, and Bourlakis (2017) discussed how immersive commerce may be applied to value addition in virtual stores through a survey and regression analysis. By their results, they show that the elements of immersion augment the perceived usefulness and pleasure that are the joint determinants of the intention to adopt immersive retail platforms. The specified paper places the immersive commerce at the junction of the functional and experience value, which

makes it even more applicable to the creation of the retail strategy (Computers in Human Behavior).

Caboni and Hagberg (2022) discussed the problem of immersive commerce because it is one of the digital innovations of physical bricks-and-mortar shopping. The authors believe in the use of the immersive technologies in redefining the relationship between the retailer and the consumer through qualitative case studies of the technology enabled retail format as well as in store immersive application. According to their results immersive commerce increases the experiential and store differentiation and in the process recreates the value of sales people. In conceptual sense, the paper has added to the knowledge of immersive commerce as a socio-technical innovation in retailing where service logic of retail is reconfigured instead of integrating new online functionality.

The article by Capgemini Research Institute (2022) provided the results of immersive commerce and customer experience in the retail sector on the premise of the survey of executive and customer panels in large markets. It is found in the report that the immersive experience generates a colossal impact in the measurements of engagement, including the dwell time, the interaction rate, and the brand recall. It has been said that retailers who employ immersive commerce are more emotionally and behaviorally involved compared to the scenario of utilizing the conventional digital mediums. Capgemini also locates the immersive commerce as a relationship enhancer of engagements that allows the establishment of relationships in the long-term and not instant transformation.

The article by Chakraborty and Biswal (2024) addressed the notion of immersive commerce to the metaverse of the retail communication layer as direct-to-avatar (D2A). They demonstrate that the arguments of diffusion-of-innovation, and empirical studies support that the metaverse-based branding dynamic and diffusion of the latter innovation facing the retail can be influenced by means of immersive communication. The article also leads to the further development of the concept of immersive commerce by not presupposing the perspective that immersive retail can be regarded not as a shopping interface (AR/VR store) but as a place of brand

communication and adoption within the avatar-based environment that is changing. (ScienceDirect)

Chatterjee and Kar (2022) study the implementation of an immersive commerce in an Indian retail by applying an augmented Technology Acceptance Model. As the results of the survey of both the Indian online shoppers and the analysis of the PLS-SEM, the authors learn that the influence of the perceived ease of use, perceived usefulness, and enjoyment are significant in determining the intention to utilize the immersive retail applications. These are mediated in these by trust and reliability of a system. The research is practical as it placed the adoption of immersive commerce in context in the situation of the varying digital literacy in India.

The future of Indian retail is developed by Das and Mishra (2025) that discusses the opportunity of immersive commerce by analyzing the expectation of the consumer regarding AR, VR, and metaverse based shopping. The paper concludes that, based on the predictive modeling and the data of the survey, consumers hold the view that immersive commerce is a product to make the shopping process more transparent and engaging as opposed to one to be done away with the physical stores. The paper introduces the immersive commerce as a supplementary product of Indian retail and not as the disruptive alternative.

Das and Namboothiri (2023) reviewed the usefulness of the visualization of products in the home decor and furniture retail business in Kerala. With an experimental design, which enabled the participating consumers to experience an interaction with the AR-based tools on spatial visualization, the study suggests that the concept of space, confidence, and satisfaction is considerably higher than going shopping with the assistance of the traditional catalogs. The perceived risk has reduced and the unwillingness to make has also been reported and this implies that the quality of the decisions made under high involvement types of retailing can be enhanced through immersive commerce in Kerala. This research gives a superior experiential enhancement and perceived value construct in Kerala retail.

In the Digital Consumer Trends report released by Deloitte (2022), the creation of value in the framework of immersive commerce in retail is discussed. As the

secondary data analysis and the cross-country survey has revealed, the report makes the conclusion that the perceived value can be enhanced through the means of the immersive retail technologies, the clear perception of the products, the decrease of the uncertainties in the purchasing process, and the offering of the personalized experiences. Consumers would be more valued when the application of immersive tools would provide them with confident purchases especially the high involvement purchases. Deloitte concludes that immersive commerce offers greater value to perceived value through approving decisions and not price benefits.

The article by Dwivedi et al. (2021) addressed the concept of immersive commerce in terms of increased digital transformation and novel technological environment. According to the authors, artificial intelligence, big data analytics, and individualization engines, which absorb the multidisciplinary approach, all turn into immersive commerce in the long run. The merger will be disposed to augment anticipation contacting retailing, customization and scale contact with clients. The article states the immersive commerce as a possible innovative capacity that renders the retailers dynamic to the consumer emerging demands.

The EY (2024) which evaluated the execution of immersive commerce in retail is based on industry surveys and on maturity models and was discussed in this paper. The report concludes that retailers that have already implemented immersive technologies are more brand differentiated, rated and perceived innovation on customer experience. The business performance is also indirect to the returns of engagement and loyalty performance. To reduce the risks of investment and benefits of performances, EY concentrates on the incremental implementation.

FICCI -EY (2023) shared the immersive commerce readiness of the Indian retail according to discussions and meetings that were held in the industry in the conferences. The small and medium retailers cannot meet the massive start up cost according to the report, lack of skilled man power and consumer awareness. However, immersive commerce is among the competitive future-worthiness initiatives, which retailers take into account. The report provides contribution of

India-specific secondary evidence in regard to the hindrance and preparedness constructs of the immersive commerce study.

The study by Flavian, Ibanez-Sanchez, and Orus (2019) addressed the virtual reality (VR), augmented reality (AR), and mixed reality (MR) as the component of the immersive commerce in the retail space and discusses the impact of such tools on the development of the customer experience. The findings of the surveys conducted among the retail customers who have already experienced immersive retail applications and structural equations modeling allow the researchers to conclude that the higher the degree of immersion, the higher the perceived presence and the pleasure and the degree of experiential value. It is a pleasant experience that has an impact in attitude towards the retailer and behavioural intentions like repeat purchase and recommendation. The article provides an excellent empirical data to validate the concept of immersive commerce as a better channel of providing retail customer experience which brings forth the strategic implication of the experience based retail differentiation (sciencedirect.com).

Gil-Lopez et al. (2023) compared the effectiveness of immersive commerce in shopping with mixed reality (MR) smart glasses and contrasts the findings with the comparison of the shopping behavior and decision patterns to the no-MR conditions of buying. They prove that MR change the course of the interaction (e.g. frequency/duration of interaction), decision time (preferably utilitarian purchases), the self-reported hedonic and utilitarian value, feelings of satisfaction and purchase intentions in a controlled consumer research dependent on implicit interaction behaviours and explicit questionnaire outcomes. Its publication is an expansion of the hypnotically consummate retail research which exposes that the value of MR is not fun, but it quantitatively and qualitatively alters the manner in which interaction and decision making is undertaken in the retail preference assignments process. (Frontiers)

Google Think Retail (2023) has a set of reflections, which incorporated the data of immersive shopping conferences and the data of platform use to analyze the actions of immersive shopping. This report revealed that AR as an immersive type of

commerce is one of the best modes that has been employed to acquire buyers to it particularly the mobile-first consumers. Exploratory behaviour is better than greater interaction, repetitive interaction and more content consumer behaviour. The findings reveal that the immersive commerce was one of the major engagement media in mobile-based retail in India largely.

Grewal, Noble, Roggeveen, and Nordfelt (2020) discussed the potential of technology in retail and refer to the immersive commerce as one of the channels of the experience-based and performance-based approaches in retail. The authors suggest that the industry trends and empirical evidence would be acted by employing the immersive commerce to perform premium positioning, innovation based branding and the growing of customer relationships. The monetary gains will be directly acquired as far as loyalty, involvement and decreased turnover are concerned. The article validates the status of immersive commerce as a long-term strategic investment and not a source of revenue in the short-term.

The strategic retail technology that is presented by Grewal, Roggeveen, and Nordfelt (2017) is the immersive commerce that defines the success of the tomorrow store. This assumption is made on the basis of their empirical studies regarding retail and state that the use of immersive technologies enables the enhancement of the conversion rates, reduction of the returns and competitive differentiation as a component of the retailer strategy. The balance of performance facilitated indirectly is also provided by greater quality of experiences and engagement. This performance capability is a long-run capability that is being mentioned in this article as opposed to a tool of short sale (Journal of Retailing).

The concept of the immersive commerce as the agent of a future performance in the retailing that Grewal, Roggeveen, and Sethuram (2022) use in the conceptual discussion of the paper is based on the empirical trends in the retailing. The authors are of the view that immersive commerce can distinguish and lower the price elasticity and up-end positioning strategies. In those cases, where the excellence of experience and emotional connectivity of the performer are at variance to the cost effectiveness, the benefits obtained are at an experience excellence level and

emotional connectivity. The prevailing narrative of retail-performance that is being reflected in the current paper is one of the factors that contribute to immersive commerce being a business-performance strategy.

Gupta and Singh (2021) presented the issue regarding the integration of the immersive commerce into the Indian organized retail, as they undertake a survey on the response of the consumers to the visualization of the product through augmented reality (AR) to the sort of fashions and lifestyle. As the survey conducted was among the urban Indian shoppers, the study findings with the help of the structural equation modeling show, the immersion is the most important thing that contributes to the perceived usefulness, fun and trust in the purchase decision. Such outcomes of experience have a positive impact on influencing the purchase decision and attitude towards retailer. Results are confirmed that the immersive commerce, in particular, is a very effective method in the setting of the Indian retail where the importance of the trial of physical products is traditionally viewed highly and the role of the immersion as the tool which can be introduced to reproduce the experience in the virtual shop is considered.

According to Han, An, Han, and Lee (2020), the introduction of immersive commerce on VR shopping is a synthesis of the Technology Acceptance Model (TAM) and consumer flow theory where the aspect of VR in tele presence and time distortion is considered to be the origin of the immersive experience. They demonstrated on the case-by-case level that the hypothesis of the immersive psychological experience (telepresence/time distortion) can be applied to the modifying role of consumer responses to VR shopping, and the motivation why VR shopping is not yet an unquestionable success even in the circumstances of the technologically dazzling effect. The paper relocates the experience of immersion-based temporal and presence changes into the focus of the retail acceptance and attitude building within the VR to facilitate the conceptualisation of the immersive commerce concept. (IDEAS/RePEc)

Heller et al. (2019) article in the context of frontline retail evaluated the effects of the AR-reduced visualization tools on the mental imagery and trust of the customers

in the context of the immersive commerce experience. The use of the experimental design and the regression-based analysis, when addressing the retail service, indicates that the immersive commerce tools cost a lot to enhance the ability to visualize customers of the usage of the products, consequently, increasing the confidence and decreasing the perceived risk. The retailers can enjoy superior conversion rates and reduced post purchase dissatisfaction. Immersive commerce is also correlated with the retail decision making process and the study relates it to the cognitive facilitation process with the functional performance outcome extrapolated (sciencedirect.com).

Heller, Chylinski, de Ruyter, Mahr, and Keeling (2019) commented on the opportunities of the immersive commerce in the future to improve the mental imagery of the consumers in the process of shopping. The research discovered that they are able to use experimental evidence and in that event immersive visualization provides the customers with the capability of visualizing how they can utilize the product and hence feel more certain and content. In the opinion of testers, the more engaging are the technologies designed, the more they will be useful in the conditions of making complicated purchasing decisions and reducing the levels of post-purchase dissatisfaction. This puts immersive commerce as the future solution in the higher quality of options and the reduced returns in retail.

Henningsson, Vaidyanathan, Archibald, et al. (2020) investigated the term immersive commerce as applied in the retail sector by conducting a case study of an AMCIS conference held research on an AR application by one of the shopping brands. According to the examination of the qualitative/field-oriented type, they suggest that the AR can reallocate the ownership of the touchpoints of the customer journey, and it can provide retailers with the opportunity to produce the situation when the customer experiences are developed. This witness of the conference introduces a managerial meaning of immersive commerce as a restructuring management of experience of the retail, which is more advanced than the application of a conversion machine. (AIS eLibrary)

Hilken et al. (2017) explained the strategic significance of immersive commerce in retail by the assessment of the immersive product offering in the digital retail services in the augmented reality. The research design, which was adopted by the authors is a mixed-method research design, which involves a sequence of controlled experiments and a survey based structural equation modeling that is used in the study of the effect of AR-based immersion on mental images, customer inspirations and customer engagement. The results show that customer inspiration brought about by the use of the immersive commerce is a powerful motivational factor, which, as a result, enhances engagement, and the urge to purchase. The benefits of retailers being a virtual commerce are not only on the way direct sales influences are affected but also on the cognitive and emotional impression to the customers. The article is pertinent to the literature of immersive commerce because it presents factual evidence to demonstrate that the experience immersion process is psychological amidst immersive retail technologies and value co-creation results (elsevier.com).

The article by Huang and Liao (2021) is dedicated to the problem of the immersive commerce adoption in AR-based retail application The stimulus-organism-response (S-O-R) model. The research, to which the results of the given survey are applied and explained with the assistance of the SEM, prove that the elements of the immersion of stimuli (interactivity and vividness) influence considerably the states of the organism implemented in the experienced pleasure and present and, consequently, the desire to buy. The results affirm the intermediation of the effects of the immersive commerce by the emotions and experience responses. The article contributes to the theoretical background of immersive commerce by demonstrating that S-O-R processes can be applied to the retail environment based on empirical evidence.

The question regarding the immersive commerce reliability is analyzed by the interviewing of the executives conducted by IBM Institute of Business Value (2022) alongside the analysis of the threat the technology poses. The report states that stability of the systems employed, their latency, data and cybersecurity accurateness are the key points that predetermine the reliability of the immersive retail platforms.

The retailers state that lack of use of the system or ill visualizations drive death of consumer confidence and use of the system. The integrity of the system is one of having sustainable implementation of immersive commerce in accordance with the guidelines that IBM provides.

Iyer, Banerjee, and Dutta (2023) article also dwelled upon the issue of Indian furniture and home decor sale within the context of immersive commerce. The experiment that was performed with the assistance of the experimental exposure to the AR based product placement tools indicates that the level of spatial cognition, certainty and satisfaction is increased by the immersive visualization. It is these that make the reluctance to be considerably lower and the chances of purchase increase. The findings indicate that the immersive commerce is particularly convenient in the Indian retail markets that result in the consumption of a lot of space and money.

Jain, Schweiss, Bender and Werth (2021/2022) develop an immersive commerce artifact omniretail mixed-reality shopping assistant and experiment with it regarding a design science study and a user experiment using two head-mounted displays (HoloLens vs. HoloLens 2). They report that the judgments of the application of the technology, pleasure and security beliefs influence intention to use MR assistant significantly whereas intention influences the convenience, perceived quality of service, attitude towards the retailer, and word-of-month; they discover that there exist differences between the devices in the field of the perceived problems of privacy. Information discussed at this conference includes another retailer specific map of the MR shopping assistance design and demonstrates how the constructs of the omnichannel experience can be transformed into action with the assistance of the immersive commerce. (Springer)

The article by Javornik (2016) is about the notion of immersive commerce in the retail setting regarding how the consumers respond to the application of augmented reality (AR) to an online and omnichannel retail setting. The paper talks about the implication of media properties of AR interactive, striking and spatial presence to consumer involvement and purchases behavior through experimental analysis of survey and structural modelling. These findings have revealed how immersive AR

experiences are good in enhancing the perceived product diagnosticity and reducing the level of decision uncertainty that leads to the amplified purchase intention compared to the existing web interfaces. It has a very high effect on experience intensive retailing business such as the home furnishing and the fashion industry. It is also an empirical study which empirically proves preliminarily the connection between the attributes of immersive commerce and the quality of consumer decision in retailing thus immersion is a distinguished process which fills the online- offline gap in retailing (sciencedirect.com).

The concept of immersive commerce in line with the constructs of mental image and customer inspiration in retailing is explored by Jessen, Hilken, and Chylinski (2023). It is decided that the abundance of mental images and encouraging and involving is attributed to the immersive retail interfaces, which are supposed to be experimentally designed and within the context of SEM. Inspired customers are better willing to make purchases and exploration customers. The research in question is based on the immersive theory of commerce as it acknowledges a crucial psychological implication of being inspired to utilize the efficiency of immersive retail.

Applying the presented context to their study, Joseph and Varghese (2022) mention the immersive retail technologies in the context of the retailer in the shopping mall ecosystem in Kerala. Novel immersive trade, the virtual try-on, the interactive presentation of goods and the 3D effect is found in the qualitative interviews made with the retailing managers working in the big malls such as Lulu Mall and Centre Square Mall. The retailers argue that they get closer to their customers and the dwell time increases yet they are scared that they are left with the system, retail price and customer knowledge. Its findings constrained the Kerala retail immersive commerce since the experience differentiation strategy was constrained in its operations and infrastructure constraint.

The sustainability of the Indian ecosystems in the retail immersive commerce is discussed as per Joseph and Varghese (25). This will be made known through mixed methods, i.e. the combination of the interview of the retailers and consumer survey,

and will find that the implementation of immersive commerce will be successful under the circumstances of technological capacity, consumer preparedness and business strategy fits. The findings affirm the fact that the immersive commerce in India requires adopting with the slow approach and situational change so that it would succeed in the long-term perspective.

Kerala Startup Mission (2023) stated that pilot projects in the AR and VR technologies in the retail-oriented startups are facilitated in the paradigm of the innovation ecosystem of the state. Based on the secondary level of assessment and startup analysis, the findings indicated that the customer engagement rates of immersive commerce application in fashion, jewellery and lifestyle retail pilot, entails interaction time and a follow-up. Rather, scalability (cost-wise, and accessibility of hardware and integration of systems) is enhanced. The use of immersive commerce is one of the new innovative retails that has been unequally disseminated in Kerala as stated in the report.

In the light of applying the concept of the immersive commerce to a retail location that will be planned to become a metaverse, Kim and Kim (2024) are concerned with the future prospects of the immersive commerce as a means of establishing the brand relations. On the findings of the survey and the SESM analysis, the authors draw a conclusion about the appearance of the perception of this sense of presence, engagement and emotional attachment because of the experience of experiencing the immersive environment. The authors posit that the metaverse retail spaces will be the third retail touchpoints, which will comprise of an in-depth experience, social interaction, and brand narration. The transactional outcome to the long-term development of a brand ecosystem increases the possibilities of immersive commerce in this piece of art.

The focus of Krishnan, Pillai, and Thomas (2022) in their article is the acceptance of mobile-based augmented reality shopping applications by the employees of the fashion retail in the state of Kerala. Using a more extended version of the Technology Acceptance Model and survey results of the Kerala Smartphone users, the study arrives at conclusive results that the perception of fun and usefulness is

closely related to intention to use immersive retail applications. The mediating factors are adoption intention through trust and system reliability, that is, the attractiveness to experience and technological reliability is the foundation of the effect of immersive commerce in Kerala. The article provides a bit of Kerala specific information also that associates immersive commerce with the consumer acceptance behaviour.

The authors comment on the concept of immersive commerce in the framework of the Indian mobile-based e-retailing with the application of the AR (Kumar, Dhingra, and Batra, 2022). The findings of the consumer survey that are achieved with the assistance of SEM assist them to learn that immersion has a significant positive effect on perceived value and pleasure that consequently influence the engagement and purchase intention. The article notes that smart phone awareness level in India promotes the use of mobile immersive commerce by younger clients. The paper presents a summary of the implementation of mobile AR as one of the scalable business immersive channel in Indian retail industry.

Li, Daugherty and Biocca (2002) analyzed the effects of virtual experience in the framework of a retail-like setting by simulating the telepresence, as well as, the experience interaction. They show through the experiment that the greater the immersion the more they seem to experience the results and perceive the realness and this provides the best persuasion. These discoveries, even in the rudimentary virtual worlds, are informative to the immersive commerce conjecture as it is an empirical relationship between immersion and experience development in situations relating to retail (Journal of Interactive Marketing).

Loureiro, Guerreiro and Ali (2022) discussed the experience of immersion within the virtual shopping space based on the emotional and experience of the retail shop. The findings of the empirical modeling regarding the shape of a survey by the authors indicate that the immersion positively influences the satisfaction and behavior intentions with a significant increase in the delight and arousal feelings. According to the research paper, immersive commerce provides emotional based shopping experience that goes beyond the utilitarian shopping intentions. The book

also adds to the current literature on immersive commerce since it evokes the emotional processes of how immersion influences retail performance.

Marin-Diaz, Alarcon-del-Amo, and Mazzoli report (2023) discussed the concept of immersive commerce as an introduction to fashion retailing in the form of AR try-on. On analysis of the survey data previously analyzed with the help of SEM, it is concluded that, the immersion increases perceived fit accuracy and confidence and decreases perceived risk and return intention. Its results suggest that operational efficiency is enhanced through immersive commerce in an indirect manner that is, through enhancing pre-purchase examination. The study is pertinent in its contribution to the correlation between immersive commerce and reduction of retail risks and after sales.

McKinsey and Company (2023) evaluated the immersive commerce in the retail field as a digital value creation strategy in the background of industry standards and case syntheses. According to their report, the extent of the utilitarian and hedonic value grows with the usage of the immersive technologies allowing to look at the previews and taking part in the exploration of the product. The report shows that the sense of value is the best when the immersive commerce is incorporated in the customer experiences as part of the journeys. This supports the use of perceived value as an intermediary in the relationship between the outcome of immersive experience and the performance of retailers.

The article by McLean and Wilson (2019) addressed the idea of immersive commerce in mobile retail by referring to the interaction of the customer in the AR-based retail app. Based on the quantitative survey information that is processed with the help of SEM, the authors study the effects of the perceived usefulness, ease of use, fun, and immersion on the engagement and buy-intention. The results have revealed that the components of self-involvement have colossal influences on customer involvement that mediate perceptions and behavioural outcome to technology. The findings also show that the immersive commerce influences the performance of the retail positively indirectly because it establishes a long-term contact with the customer against the immediate realization of a transaction. The

specified paper can also be connected to the current body of literature on the topic of the immersive retailing due to the empirical test of the involvement as the core mechanism through which the immersive commerce generates the values to the retailers (elsevier.com).

Mehta and Shah (2023) brushed upon the problem of immersive business and interaction between customers in the Indian fashion retail. Their conclusions are calculated based on the assumption of the survey data of the customers who already tested AR try-on feature and SEM analysis and the findings indicate that the level of emotional and behavioral engagement can increase significantly with the help of the immersive interactivity and vividness. Engagement experience, in the sense of immersion is associated with the intention of loyalty. The paper has given immersive commerce as an engagement tool of the long run and not a promotion tool of short run in the Indian retail business.

Menon and Mathew (2024) investigated the theme of virtual trial on ornaments in the Kerala jewellery retail as the experience of immersive commerce. The research, performed on the basis of the customer survey and regression analysis, suggests that immersive visualization is the powerful media of impact on the sense of authenticity, trust and feelings involvement. The premium purchases are the ones where the customers are more assured and less nervous. The findings show that immersive commerce would work when this is implemented in the retail industries in Kerala where the level of emotional and financial involvement is very high.

According to Mishra and Singh (2025), the willingness of immersive commerce between retailers is based on how the management approaches the project of adopting AR and VR in the retail firms. The paper is conclusive that the visual strategic value, client preparedness, and infrastructural capability exert immeasurable influence on the adoption intention on proceeding with the survey information acquired between the retail manager and execution of the multivariate analysis. The retailers view immersive commerce as an outlay and not an income generator in the short-term outlook. The research is timely as it will incorporate strategic perspective of the retailer in the immersive commerce adoption literature.

Mishra, Mishra, Dubey and Dwivedi (2024) generalize the findings of immersive commerce through a meta-analysis of VR as a method of retailing and a mix of purchase and non-purchase intentions to buy is provided. Through quantifying the traces of the patterns they discover of how the patterns of VR retail spaces affect the intentions in processes relating to experience (e.g. immersive interaction and perceived playfulness/engagement), and by how the greater or lesser effects are produced in different environments. The meta-analytic study is more conceptually founded on the notion of immersive commerce as the study introduces the second level of generalized evidence of the behavioral effect of VR retail, unlike in the one-study designs. (Pure KFUPM)

The application of the immersive commerce is regarded by Mkedder, Jain and Salunke (2024) with reference to the virtual reality (VR) stores theorizing the structural forces behind the intention to purchase the VR-stores. They use interpretive structural modeling (ISM) to show the hierarchies of the correlation of the determinants and in investigating the purchase intention; e-service quality proves to be the most common determinant in the VR-store scenario and enabling factors that enable VR retailing experience are interdependent. The article states that the actor of the immersive commerce performance within VR retail does not solely depend on the concept of novelty but re-designs the elements of service quality within the VR conditions. This proposal offers systematic and system-wide view of the hierarchy of determinants and management prioritization of the manner VR stores operate as a service to the prism of immersive trade beyond the perceptions of the user, under review by the retails. (IDEAS/RePEc)

To explore the appropriateness of the application of the augmented reality (AR) technology in the acceptance of the organised retail outlets in Kerala, Nair and Menon (2021) cognise how consumers respond to the utilisation of the shopping assistant in the apparel and lifestyle retail outlets. The paper has reached its conclusion due to a survey that has been carried out with Thiruvananthapuram and Kochi/Trivandrum shoppers, the use of descriptive and inferential statistics, and the fact that the immersive visualization has monumental impact on the perception of

the product and having fun shopping. AR-enhanced retail experiences make consumers feel more like the ones they can get in a brick-and-mortar store, which further gives them more confidence in their purchase. As indicated in the paper, the primary motivator in the adoption of immersive commerce by Kerala consumers is the obsession with experience and the sense of perceived value particularly to the urban retailers.

Nair and Pillai (2024) article outlined the challenges of the roll-out of the immersive commerce to the brick and mortar retail in India. The paper is based on a cost barrier, infrastructure readiness, employee training and customer orientation through the thematic analysis of a qualitative interview of the retail managers. Nonetheless, despite all the challenges, retailers assume that immersive commerce can be regarded as a possible form of differentiation and experience-based retailing. The value of this piece of work is the retailer limitation which has been played into the Indian immersive commerce experience.

Nikhashemi, Knight, Nusair, and Liat (2021) discussed a problem of immersive commerce as an effective and trustworthy experience in a smart retail setting. Their analysis has indicated that reliability of the systems, accuracy of the content and technological stability are strong influencing factors on the trust, satisfaction and repurchase intention based on the information of the survey, and mediation analysis. According to this article, the key factor that determines the success of immersive commerce is the degree of richness of experience or the consistency of the system which is the main factor of consideration in a retailing environment in the perception of perceived high risk (Journal of Retailing and Consumer Services).

Pantano and Pizzi (2020) are concerned with immersive commerce as the element of the smart retail ecosystem and they assume that the technological approach of immersive technologies will be the key to the retail innovation in the future. The conceptual theme of the research is based on the available research findings on the retail store layout, customer experiences, and service experiences redesigning which are elaborated on the basis of the empirical observations. The authors indicate that it is the coordination of the data-driven personalization and experience that passes

through immersive commerce that is why it is stated that it has been one of the key facilitators of the intelligent and adaptable retail spaces. The possible change in business processes and customer experience in the retail business and immersive commerce is determined in this work.

The study by Pantano and Servidio (2012) is an empirical study of the use of immersive technologies in retail outlets based on the data of the survey and observation. Existence of immersive retailing settings, as their findings suggest, contributes to the rise in customer traffic, attractiveness of the store, and perceived innovativeness which positively impact the measures of the store performance. The research offers a tentative empirical supporting evidence on the immersive commerce as a factor of retail competitiveness.

In their analysis of the deployment of immersive commerce technologies in smart retailing environment, Pantano, Priporas, and Stylos (2022) make use of the empirical information of the technology-based retail stores. Their regression analysis shows that there is a positive effect of the immersive technologies on perceived innovativeness, store attractiveness, and experience value. These variables have a positive influence on the revisit intention and store loyalty. The article introduces immersive commerce as the main element of the intelligent retail programs that enhance the performance of the relational and the experiential retail.

Park and Yoo (2021) focussed on the concept of immersive commerce in terms of the retail business environment by examining how consumers react to the concept of augmented reality (AR) product visualization upon conducting an online shopping activity. The research is anchored on the survey data of AR retail users and structural equation modeling, which confirms that immersion has a powerful positive impact on the sense of perceived diagnosticity, pleasure, and confidence in the decision making. This is what has positive implications on the experiential effects on purchase intention and attitude towards the retailer. The results affirm that the immersive commerce can enhance the performance of retailers indirectly, that is, by making sure that consumers are subjected to thinking processes, and not by making transactions simpler, solely. The present study contributes to the immersive

theory of commerce since it demonstrates empirically the relation between immersion and quality of decision in the retailing business.

The article by Patel, Joshi and Trivedi (2023) is about the development of the online Indian retail immersive commerce trust. Upon computing a survey data with the help of the mediation analysis, the authors discover that accuracy of the system, its realism, and its data security are significant predictors of trust in immersive retail platforms. The effect of trust on the reuse intention and satisfaction is positive. The results show that the Indian consumers are extremely sensitive to reliability and privacy in which reliability of the system is one of the success factors that affect the adoption of the immersive commerce.

The paper by Pizzi, Scarpi, Pantano, and Dennis (2022) explored the problem of authorization of the immersive commerce in the retail stores equipped with the AR and VR technology. They rely on survey data and multivariate analysis to confirm their findings that confirm that the perceived usefulness, enjoyment, and trust factors are the noteworthy ones that predetermine the extent to which consumers are ready to use the immersive retail technologies. Behavioral intention and immersion by trust have a partial mediation. The findings point to the fact that the utility of immersive commerce to the retailing business necessitates a trade-off between the experience novelty and its reliability and realism.

Poushneh and Vasquez-Parraga (2017) focussed their interest on empirical studies of the application of the immersive commerce to the retail environment as the application of the augmented reality to the retail environment on-site and online. The conducted survey among the customers in the retail outlets and the subsequent analysis of the data collected with the help of regression and mediation analysis confirms the presentation of the two factors of customer satisfaction and purchase intention that are oriented at the use of AR as immersive experiences. The findings suggest that customer satisfaction, introduction of enjoyment, information, and perceived control of the shopping experience in the immersive commerce have a markedly high positive impact. The circulation of the existence of satisfaction to some extent between the immersion and purchase intention is mediated by

satisfaction, implying that the immersive commerce is reacted to by creating experiences and not necessarily by the functional advantage. The research paper at hand is also contributing to the literature within the retail-related immersive commerce literature since it makes customer satisfaction a core product of the immersive retail.

The article by PwC (2022) took into account the introduction of immersive commerce at the global level and in the retailing industry specifically and outlines the response of the retailers and consumers in such states as India. The development of the report is premised on the analytics of the survey conducted on the mass scale and the forecasting of the situation that will lead to the conclusion that immersive technologies (AR and VR) may become very useful to the abundance of the experience as they will enable people to feel virtual try-ons, immersive narrative, and visualize products. The retailers that applied immersive commerce state that they are more emotionally connected to a consumer and that they are more experience-differentiated. The experiential uplift is believed to be the primary strategic push leading to the application of experience based segment of the retailing as proposed in the report.

The article by Rajan and Suresh (2023) provided the comparison of the readiness of immersive commerce between small and medium businesses (SMEs) in Kerala. The paper concludes that the independent retailers possess the information on the experiential advantages and involvement and benefits of the immersive commerce but because of the financial limitation and technical expertise and awareness, they are not able to embrace the technology according to the survey outcomes of independent retailers in Ernakulam, Thrissur and Kozhikode and the factor analysis. It further brings out the point that immersive commerce in Kerala is seen as a strategic opportunity that may take a long term where it does not have to even be in operation.

Raman and Aithal (2022) believed in the importance of the Indian retail companies in the framework of the immersive commerce preparedness through the perspective of the manner in which the managers perceive the application of the AR and VR.

The discussion is based on the survey report of the two Tier I and Tier II cities according to the location of the retail managers, factor based analysis, which contributes to the conclusion that the perceived strategic value, customer engagement potential, and competitive pressure are the drivers contributing to the adoption of the immersive commerce. High start up cost and limitation of infrastructure are the most vital obstacles. The article puts the immersive commerce within India as a well-positioned and strategically-adopted retailing innovation.

Rauschnabel, Babin, tom Dieck, Krey and Jung (2022) speculated about the immersive business in the future metaverse and extended reality (XR) world. The development conceptualization employed by the authors is based on the earliest empirical observations that immersive commerce that will replace the product visualization to the long term virtual shopping, avatars-based shopping, and social commerce. The article mentions that it can expand in the future with the assistance of the community-based shopping experiences and brand worlds. One of the disruptive innovations that are introduced in this paper in the redesign of the retail experience and social interaction is the immersive commerce.

In their article, Rauschnabel, Felix, and Hinsch (2019) examined branding the immersive commerce of mobile AR retail apps. According to the facts revealed in the research, they show that the simulated AR experiences are motivation, more involving, and performance-based on the brand. The element of the immersive commerce can bring the power of the retailer that transcends the buying and selling in that it can bring about the sense of exploration, a sense of wonder as it has been established in this paper.

In Reddy, Mohan, and Rao (2024), the effects of immersive commerce and business performance of the organization within the Indian organized retail chain are explored. Based on the data collected after the analysis of the retail executives and the regression equation, the researchers find out that the implementation of the immersive-commerce positively influences the number of customers in the store, time spent in the store and brand innovativeness. Its returns to the financial

performance are indirect and slow therefore supporting the opinion that the situation where immersive commerce is long-term strategic investment in India.

Sanaei (2024) gives a conceptual model, and it offers how the immersion as a constituent of the AR shopping applications mediated both the parts of the customer satisfaction and the attitude to buying the item by the immersion itself. It is anticipated that the model will be advantageous to the firms in terms of priorities as they will be prioritised on matters of AR design since it is pertinent to the augmentation of experiential satisfaction. The model itself is theoretical; nevertheless, in the empirical sphere it remains to be supported by the work of AR, and other studies of the retail stores are still waiting to be served by the structural equation modeling in the real life retailing in the future. The framework will serve as a guiding principle in decision-making on whether to invest in AR and to the practitioners, which areas are to be achieved or enable the desired effect of contentment and sales volume in utilizing technology will be the most determinative.

The article by Sarkar, Das and Chattopadhyay (2021) talked about the Indian omnichannel retail to immersive commerce by assessing the use of AR-based virtual try-ons. To achieve the findings that immersive tools evoke the sense that the risk is lesser and the decision is much more satisfactory, the authors apply the instruments of experiment design and regression analysis to draw the sought-after results. The power is higher when it comes to clothing and accessories that are extremely insecure when it comes to fitting and looking. The research is practical as it explains how the concept of immersive commerce can help to cope with the issue of trust and risk, which most Indian online shoppers have.

According to the results of the trust and engagement scales, Scholz and Smith (2016) examined the consumer response to the use of immersive design in retail stores. They introduce the outcomes of the qualitative interviews and scenario-based testing that indicate that it is the discrepancy between the virtual models and the actual product that creates the disruption in the trust to immersive commerce

systems. Their conclusion supports the notion of reliability and realism in order to ascertain the consumer confidence in the immersive retail adoption.

The issues of inclusiveness and accessibility of the implementation of the immersive commerce in Kerala retail establishments are the concerned issues addressed by Shaji and Paul (2024). Referring to the information of the consumer survey provided according to the age and digital literacy, the research concludes that the older consumer and the rural consumer is less predisposed to the acceptance of the immersive retail technologies. The authors give the prospect of hybrid types of retail that will integrate the immersive qualities with the service that will be traditional to make it inclusiveness. This work can be used because it clarifies consumer associated obstacles in Kerala retailing setting that is socially diverse.

According to Shankar, Kalyanam, Setia, Golmohammadi, Douglass, and Hennessey (2021), the concept of immersive commerce is included in omnichannel retail strategy. The conceptual development that the authors rely on is the industry evidence that the immersive technologies can combine both the physical and digital touchpoints and provide seamless customer experiences. The standardization in the experience of the immersive commerce can increase across the channels and boost customer loyalty and satisfaction. The contribution to this work is tactical since it presents the immersive commerce as an omnichannel capability and not a technology.

The immersive commerce inclusiveness issue in the Indian retail context is taken into account in the article by Sharma and Kulkarni (2024). According to the surveys of consumers and the analysis of subgroups, the researchers draw generalizations that the less digitally literate older groups are not as receptive to immersive retail technologies. The authors highlight the necessity of having hybrid retail strategies and immersive and traditional interfaces. It is possible to state that the research can be evaluated as valuable in terms of emphasizing inclusiveness as an important parameter in the Indian retailing market that is highly differentiated.

Thomas and George (2025) focused on the role of the immersive commerce on the attitude towards the retail brands in Kerala. It is determined that, based on the survey

data presented on the customers who underwent the experience of an AR-enabled retail space with the assistance of SEM, immersive experience has a high impact on brand innovativeness and modernity perceptions that, in turn, are positively connected to the intention to be loyal. The indirect and mediator effects of the business performance are interaction and satisfaction. The paper promotes immersive commerce as an able branding and positioning site in retailing in Kerala.

UNCTAD (2022) addressed the big picture of the digital revolution of the retail in developing economies through the immersive commerce. The report cites the presence of infrastructure, digital literacy and affordability as key challenges of integrating immersive commerce into a market like India by use of secondary data, as well as secondary policy analysis. The results indicate the lack of inclusiveness that the immersive commerce would be able to introduce to the city and the digitally intelligent population unless it is diluted somehow.

Vaidyanathan and Henningsson (2022) seek to answer the question of how the retailers include AR services in such a way that they provide more fulfilling customer experiences since there is no connection between the good lab outcomes and the milder commercial effects. On the applied research design, which is based on service design logic, they postulate and demonstrate design principles of AR service design setups that optimize experiences at the retail outlets to customers. Their contribution makes immersive commerce not just the functionality of the AR, but the service platform that ought to be specifically designed in the customer journey touchpoints, which makes the concept more feasible to the retailers, who would rather realize immersive commerce in the scalable form.

Verhulst, Van den Poel, and Snoeck (2024) pay attention to the reliability of AR-based retail services. Using mixed method which entails the application of both surveys and system-performance assessment, it was found out that system latency, accuracy, and stability would strongly influence trust and continued use intention. The paper also evidences that the effectiveness of immersive commerce can be restricted by the consistency of technology, which explains the focus on the operational capability in the context of embracing immersive retail.

Verma and Sinha (2024) believed in the place of immersive commerce in e-commerce in India, which utilizes VR-based product features and product demonstrations. Concluding on the results of the comparison of VR demos and traditional displays on an experimental basis, they report that immersive demonstrations lead to a better comprehension of products, engagement, and confidence in purchases. It is revealed in the paper that immersive commerce can increase salesperson-assisted selling rather than replacing human interaction in Indian retail.

Wedel, Bigne, and Zhang (2020) investigated immersive commerce interfaces at retail level on the basis of reviewing and synthesizing the data on virtual reality (VR) and augmented reality (AR) retailing space. They demonstrate that in an experimental and conceptual synthesis process, which is situated on the consumer information processing theory, the immersive retail technologies have the potential to enhance vividness, interactivity, and presence that redefine consumer behaviour towards, assessment and recollection of products. It is concluded that immersive commerce is able to contribute to better experiential processing and can be reduced in complex choices concerning purchases. Theoretically, this work of art places the immersive commerce as a paradigm shift in the retail interfaces which transform consumer decision-making processes and does not provide a digital touch to their beauty.

World Economic Forum (WEF, 2023) noted that the risks of immersive retail commerce are addressed within the sphere of digital trust and technology governance, which is addressed in the forums on a global scale. The report reveals privacy, data protection, and transparency in the algorithms as among the issues that have to be trusted in the immersive retail experiences based on the reviews of the policies and consultations with industry. The findings affirm the importance of proper governance structures in order to assist that will result in proper and ethical implementation of immersive commerce.

Listing the empirical literature on VR shopping, Xi and Hamari (2021) identify immersive commerce as one of the key elements in the value-creating process of the

future of retailing. As a result of a systematic literature review, the authors affirm that immersive commerce will advance as the novelty-based applications to the standardized retail tools in supporting the confidence to make decisions, engagement and perceived value. The article emphasizes the fact that as technology becomes more accessible, immersive commerce will no longer be a niche segment and grow to become a significant part of the retail mainstream. The authors are interested in the prospect of growth in terms of scalability, integrating platforms, as well as the reduction in the hardware constraint.

Yang and Lin (2024) studied digital retail immersive commerce by conducting an experiment on the impact of AR interactivity and vividness on telepresence and downstream purchase-related outcomes. Depending on an online survey design and the causality path tests, they find that the more interactive and vivid, the more the telepresence and the more effective the media are, the more pleasureable the media, and the more consumers are engaged and interested in making purchases in AR shopping set-ups. Their result makes telepresence a core psychological process that transforms the properties of immersiveness in an interface into retail-effectiveness. The article supports the immersive commerce theory on a conceptual level by empirically linking the AR design characteristics to engagement and conversion performance through telepresence in a contemporary retail store in the digital-economy.

In their research on the impact of the spatial presence on the consumer attitude, Yim, Chu, and Sauer (2022) compare immersive commerce in VR retail space. On the basis of the experiment and regression findings, they find that the more immersion, the more presence of space that improves enjoyment and purchase intention. However, a high level of complexity is unproductive and the best levels of immersion. The next step in the development of this research is the discovery of conditions of a successful immersive commerce in retail sector.

Yoo (2023) examines the immersive commerce concept, which is discussed in the context of mobile retail AR, simulates the influence of perceived media richness and interactivity affecting telepresence, and the effects of telepresence on

utilitarian/hedonic value and behavioral intentions, and mediates the moderating impact of task complexity. The research through hypothesis testing using surveys conducted on mobile users concludes that AR based telepresence and experiential values significantly affect behavioral intentions and relationship varies in strength according to perceived task complexity. The article develops the immersive commerce retail theory by showing that the advantages of immersive experiences are conditional: the immersive value creation is increased when the shopping task is regarded as less complex (or when AR reduces the complex enough).

2.3 Research Gap

The comprehensive literature review suggests that the immersive commerce has emerged as an experimental retail interface to a strategically pertinent phenomenon, which has been influencing customer experiences, interaction, and long-term retail performance. The fact that the application of immersive technologies (AR, VR, MR, metaverse-enabled retail space) enhances the experiential performance in the form of enjoyment, presence, mental imagery, inspiration, engagement, perceived value, and confidence in the decision is always certain in previous researches. Empirical findings at the Indian and the global level confirm that these experiential processes indirectly produce positive behavioral outcomes such as the purchase intention, loyalty intention, brand attachment, perceived risk reduction and reduced turnover intentions. Immersive commerce as a long-term strategic investment rather than a revenue-generating tool is also backed up by the industry reports. The literature has, however, become thick, however, there are a number of substantial gaps that remain unfilled particularly in regard to holistic application, retailer-oriented perspectives, and local specificity in new markets like India.

Firstly, there is an immense gap in terms of trying to include both positive and negative determinants in a single empirical model. The large bulk of the literature is greatly skewed in terms of addressing all the positive experiential and engagement-related outcomes of immersive commerce, such as experiential enhancement, perceived value, inspiration, and engagement, and in regard to challenges, risks, and barriers as peripheral or descriptive observation. The financial constraints,

infrastructural constraints, skills constraints, system reliability, privacy and inclusivity are reported in the industry and are reported in qualitative studies but the negative facts are rarely integrated with opportunity constructs in a single analytical facility. Thus, the literature lacks a coherent explanatory framework that can represent the nature of the interplay between opportunities and constraints in establishing the success of the implementation of immersive commerce in retail.

Second, although the current research on consumer-side adoption and consumer behavioral intention has been extensively conducted with the framework of various models applied such as TAM, UTAUT, S-O-R, flow theory and telepresence models, minimal focus has been given to the strategic and operational perspective of the retailer. Most of the empirical studies rely on the surveys and laboratory tests made by the consumers, but not much research has an empirical value of the perceptions of the retailers on the immersive commerce on strategic value, riskiness of investment, preparedness of operation and long-term performance consequences. The Indian retailing environment particularly when the cost sensitivity and the infrastructural variability and the capacity of the organization to embrace a particular retailer are key determinants of the adoption decisions; there is a clear need of retailer-based empirical research other than consumer acceptance.

Third, there is no empirical clarity on the ways immersive commerce can be mediated on the outcomes of business performance despite its strategic positioning as long-term performance enabler. There is a great deal of unanimity in the available literature that the finances are mediated and indirectly by means of the variables of experience and relationship which cover engagement, satisfaction, loyalty, and the perception of the brand. Still, little empirical research empirically quantifies these relationships with the use of elaborate models during the period of relates the opportunities of immersive commerce, consumer assimilation systems and business performance indicators to what appears to be an ultimate outcome such as the execution of successful implementation. As a result, the causal model considering the manner through which the idea of immersive commerce can be applied to describe organizational success is incomplete.

Fourth, the context is capable of generating gaps in case the study of immersive commerce is confined to Indian and Kerala. The existing studies are limited to one of the stakeholders (fashion, furniture, jewellery) or a sub-group (however, the research in India and Kerala make useful insights into consumer acceptance of AR-based visualization, virtual try-ons, and acceptance). The Indian retail structure lacks a coherent study of opportunities, challenges, consumer acceptance, performance implications, future potential and risks/barriers, which are conducted on a large scale and integrative basis. On local research among Kerala, further structural, inclusiveness-related, and awareness-related barriers are also listed, though these are hardly combined into more sophisticated structural models of immersive commerce adoption and implementation.

Fifth, despite the increasing debate on the potentials of the future i.e. metaverse retailing, avatars shopping and the immersive brand space, empirical research remains in its infancy in connecting the future oriented constructs with the realities of current implementation. The majority of the studies address the concept of the future potential in an abstract manner, with no real effort to empirically research the role of expectations regarding the potential to innovate, growth potential and brand image in shaping the current usage and strategic decision-making of the retailers. That is a time gap between the visionary projections of immersive commerce and the more mundane application of the particular concept in the retail context.

Finally and yet importantly, even though some of the studies acknowledge the importance of system reliability, trust, privacy and inclusiveness, they are often presented separately. It lacks empirical research that includes technological reliability, security risk, operational risk, and consumer inclusiveness barrier as structural constraints that either have a direct or indirect impact on the success of immersive commerce. The distance is particularly relevant to the emerging economies, in which, based on the issues of digital disparities, availability, and trust, the consequences of technology may be significantly mediated.

In general, the existing literature lacks an empirical model grounded on opportunities, challenges, consumer acceptance, business performance, future

potential, and risks/barriers through the prism of retailers to explain why the introduction of immersive commerce into the Indian retail is successful. To address this gap, the analysis should have an extensive research approach that captures all the enabling and limiting factors in one mode of analysis and might result in the inclusion of the theoretical literature in immersive commerce and the practical application of strategic decision-making in retailing in the new market.

2.4 Conclusion

In this chapter, the reviewed literature turns immersive commerce into a disruptive but complex approach to modern retailing, which has the potential to add the level of experiential value, consumer experience, and business performance in the long-run. Although the above study lays a lot of stress on the experiential and consumer side benefits, it does not provide much integrative information on the retailer-centered issues, threats, and functioning limitations, particularly in the Indian context. The systematic review developed with the help of PRISMA implies that the need exists in the synthesizing empirical models that would examine the opportunities, challenges, consumer acceptance, business performance, prospects of future, risk-barrier dimensions simultaneously. The need to close such gaps is especially important in the perspective of the retailer oriented approach to learn what can make the immersive commerce successful in the modern Indian retailing.

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CHAPTER 3

IMMERSIVE COMMERCE IN INDIAN RETAIL – A THEORETICAL FRAMEWORK

- *Introduction*
- *Concept of Immersive Commerce*
- *Immersive Commerce Acts as a Strategy*
- *Indian Retail - An Overview*
- *Theories of Immersive Commerce*
- *Conclusion*
- *References*

Anoop, P. Opportunities and challenges of implementing immersive commerce strategy in modern Indian retailing. Thesis.2026. Farook College (Autonomous), University of Calicut.

3.1 Introduction

The chapter gives a detailed theoretical account of the concept, development, strategic applicability and dynamics of implementation of immersive commerce in the environment of the modern Indian retailing. The swift transformation of retailing as a traditional physical asset into the digital and omni-channel designs has revealed the essential shortcomings of traditional e-commerce, especially its failure to reproduce the sensual richness, engagement, and experience of the real stores. In order to address these shortcomings, immersive commerce has come to pass as a revolutionary retailing paradigm that incorporates digital technologies of Augmented Reality (AR), Virtual Reality (VR), Mixed and Extended reality (MR/XR), Artificial Intelligence (AI), Data analytics, and Meta verse platforms to develop interactive and experience-driven shopping experiences.

The chapter theorizes the concept of immersive commerce as not just an e-commerce process but a form of retail experience focusing on interactivity, immersion, personalization, and value co-creation. It describes how the use of immersive technologies transforms consumers into active participants rather than passive viewers, that is, virtual try-and-buy, product visualization, immersive in-store interfaces, social shopping, and metaverse-based commerce. These experiential features contribute to the perceived value, emotional engagement, trust, and client satisfaction and minimize the risk of purchase, uncertainty, and post purchase dissonance. The discussion also establishes the main features of the immersive commerce such as realism, smooth omni-channel integration, technology responsive, spatial representation, and emotional appeals which together determine the outcome of consumer behavior and retail performance.

Also, the chapter contextualizes immersive commerce in the context of the changing Indian retail environment which is quickly becoming digital, with growing organized retail, increased e-commerce, and heightened consumer demands to experience shopping. It identifies the strategic value of immersive commerce to Indian retailers to gain a competitive edge, encourage innovation and create sustainable relationships with customers in addition to the issues concerning the cost

of implementation, infrastructural constraints, the complexity of technologies, privacy, consumer willingness, and the knowledge gap.

In order to develop a strong analytical groundwork, the chapter combines several theoretical approaches. Together, these theories ensure the multi-dimensional view of the interaction between the opportunities and challenges in shaping the implementation of immersive commerce in Indian retailing to inform the creation of the conceptual model of the study and hypotheses.

3.2 Concept of Immersive Commerce

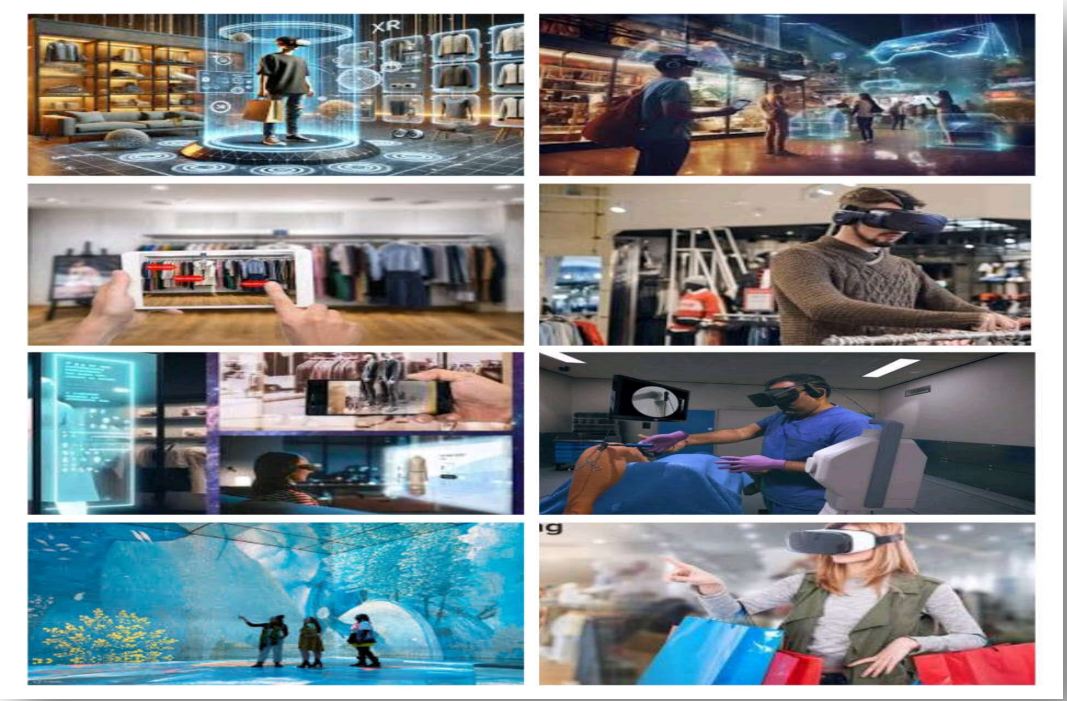
A paradigm shift has occurred in the retail industry that has literally changed the product interaction by consumers, their brand preference and shopping condition. The inability of the traditional e-commerce to recreate the sensational richness and feel of the traditional brick-and-mortar retail store has been condemned, with the majority of the features being little more than a simple extension of the two-dimensional interface, frozen product view and textual detailing. Due to these failures, immersive commerce is now a new breed of the retail paradigm, which integrates immersive technologies such as augmented reality (AR), virtual reality (VR), mixed reality (MR), extended reality (XR), artificial intelligence (AI) and spatial computing to create interactive and engaging experiences related to shopping. Immersive commerce enables people to view, touch, feel objects in digitally enhanced settings thereby bridging the gap between online and physical retailing format (Flavián et al., 2019; Javornik, 2016).

Immersive commerce does not enhance the old-fashioned e-commerce, but re-patterns it as experience based retailing. The retailers can have a more significant influence on them by incorporating the immersive technologies into the consumer decision making process with the aim of improving their perceptions, emotions, engagement, and purchase intentions. It is an experience-based orientation that is aligned with the general evolution of the retail into the nature of the experiential marketing, omnichannel, and customer-oriented business models (Pine and Gilmore, 1999; Verhoef et al., 2009). As the movement toward more customized consumer demands continues, becoming increasingly interactive and convenient, immersive

commerce is a powerful instrument to retailer to introduce value creation and competitive advantage.

Figure 3.1

Pictures showing Immersive shopping experience offered by Retail Outlets



3.2.1 Immersive Commerce - Definition

Combinations of immersive digital technology and commercial functions are the immersive commerce to create interactive, engaging, and sensory shopping experiences to imitate or create real-world shopping experiences. It further makes products and services virtually or physically augmented available to consumers to the point where consumers can engage and learn more about them before making purchasing decisions (Hilken et al., 2017). Unlike traditional e-commerce, immersive commerce dwells upon the concept of presence, immersion, and the aspect of interactivity that are critical psychological states that define consumer behavior in an online environment.

Conceptually, one can determine immersive commerce as a digitally mediated commerce, where the customers can experience digitally simulated or augmented retail spaces permitting them to work with products, brands, and other customers in an experience fashion (Dwivedi et al., 2022). It has defined three basic dimensions, i.e. (i) immersive technologies, (ii) experience interaction and (iii) value co-creation between retailers and consumers. The immersive commerce as such is thus beyond the transactional exchange, which involves emotional, cognitive and sensory dimensions of shopping.

The scholars presume that immersive commerce turns consumers into active participants of the shopping experience as opposed to being passive receivers of information (Javornik, 2016). The consumers are able to experiment and customize their shopping experience with AR try-ons, virtual showrooms, 3D product visualization, retail spaces designed in the metaverse, and so on. This participatory attribute contributes to the perceived control, pleasure and confidence all of which are highly significant determinants of consumer acceptance and satisfaction.

3.2.2 E-Commerce to Immersive Commerce

The history of the evolution of immersive commerce can be regarded as the series of evolution, manifested by online shopping to the e-commerce and then the omnichannel and immersive retailing. The early e-commerce frameworks were all convenient, price-equal and access, but had no sensuous appeal and immersion. As the digital technologies increased, retailers began to add multimedia, interactive, and customization functionality to improve the online shopping experience (Verhoff et al., 2015).

Immersive technologies entering the scene became a radical change in this development. The AR applications allowed the consumers to view the goods in the real environment such as the location of virtual furniture in their homes or trying on clothes and makeup virtually. These functions were further extended with VR technologies, which gave the possibility to have fully immersive virtual stores and showrooms where the consumers could walkaround, browse and interact with the products as though they were at the stores (Flavian et al., 2019). MR and XR

technologies unite the physical and digital that create hybrid retailing experiences that make the retailing more actual and enjoyable.

This action can be regarded as a broader process where experiential consumption can be applied to the situation because the value is not just in the possession of new goods but also experience in shopping. Immersive commerce, then, is an overlap of digital technology, experience marketing and strategic retail transformation.

3.2.3 Immersive Commerce Technologies

The synergy of contemporary digital technologies that work in conjunction to create interactive and engaging shop experiences stimulates immersive commerce.

Augmented Reality (AR)

Augmented Reality (AR) is the idea of adding virtual elements of images, animations, and informational overlay to the physical space in the real-time through smartphones, tablets, smart glasses, or physical in-store digital screens. AR can be applied in retail whereby the distance between physical and e-commerce can be lessened by letting the consumer view the products in their natural setting. These retail applications are generally the virtual try on of clothing, cosmetics, eyewear, and footwear; product visualization, such as furniture and home furnishings; and interactive product demonstrations where more information about one product, or about product usage or product comparison can be seen.

AR has a critical role of reducing the perceived purchase risk by ensuring higher knowledge about the product and has the ability of ruminating realistically about the product prior to purchasing. In the empirical study, the researchers found out that AR has a positive impact on the perceived usefulness, the hedonic value, and the confidence in the decision, which is positively correlated with customer engagement, attitude, and purchase intention (Javornik, 2016; Hilken et al., 2017). AR is applicable in both the organized and unorganized retail set ups since it is particularly applicable in the Indian retail environment due to its accessibility through smart phones.

Virtual Reality (VR)

The concept of Virtual Reality (VR) is linked to the creation of the fully immersive and computer-generated spaces that substitute the real reality and allow the users to navigate a fictional retail space with the help of VR goggles or immersive screens. VR will assist the consumers to move around in their virtual stores, see 3D objects in various positions and connect to brand narratives in the most engaging manner. The VR unlike the AR which added real world is a complete experience simulator that recreates or reinvents the physical retail space.

The VR can be especially useful within the retailing industry where high-involvement and experience products such as real estate, automobiles, tourism, fashion and luxury goods are involved. VR commerce allows the consumer to touch the products under the real-life circumstances such as trying the car, seeing the house or having a virtual fashion show. Research shows that VR leads to better emotional attachment, perceived presence, and value of experience that leads to a better brand remembrance and an intention to purchase (Flavián et al., 2019). VR is strategic means of differentiation, particularly in flagship stores, malls and experiential marketing campaign to the Indian retailers.

Mixed Reality (MR) and Extended Reality (XR)

Mixed Reality (MR) and Extended Reality (XR) are the improved immersive technologies that unite the peculiarities of both AR and VR to allow an opportunity to communicate in both directions with the real and virtual worlds all the time. Mixed Reality supports digital objects to interact directly into the real world in real time, with XR adopted as an umbrella term to define AR, VR, and MR technologies. The technologies provide the possibility to have hybrid shopping experience that obviously integrates online and offline retailing.

Some uses of MR and XR in the retail store setting are smart mirrors, interactive digital signage, immersive showrooms and virtual sales assistant. These applications will enhance customer interaction as customers will be able to customise their interactions, have personalised product suggestions and have brand stories that are

interactive. MR and XR make it also possible to use omnichannel retail solutions that would connect the real-life store experiences with the digital spaces. Their application improves experiential improvement, product positioning and perceived innovativeness because the opportunity constructions of the immersive commerce implementation.

Information analytics and Artificial Intelligence (AI)

The smart of immersive commerce is Artificial Intelligence (AI), which can be applied to customize the experience, predict analytics and dynamically-delivered content in immersive spaces in real-time. The consumer behavior is studied, the browsing processes and emotional responses are evaluated and the data of the interaction that is delivered or generated by the AR, VR, and XR technologies is determined with the help of AI-based algorithms. This enables the retailers to offer personal recommendations on the products, price changes, virtual assistants, and customized immersive experience.

The AI-powered data analytics will enhance the strategic decision-making of retailers as it will provide them with the information related to the preferences of the customers, the engagement level, and conversion paths. Immersive commerce also applies AI to support natural language processing, computer vision, face recognition, and sentiment analysis and make interactions at immersive commerce more natural and responsive. It has been demonstrated in literature that AI would increase the perceived value, reliability, and customer satisfaction in the digital commerce environment by a significant margin (Dwivedi et al., 2022). An Indian retail setting that has been facilitated by AI to offer immersive commerce aids in scale, customer segmentation, and consistent competitive advantage.

Metaverse Commerce

Metaverse commerce refers to retail commerce that occurs in enduring, communal, and immersive virtual worlds in which consumers interact with each other through digital avatars. These spaces reproduce or broaden the physical retailing settings and enable the consumers to experience virtual stores, attend product promotions, get a

social experience, and purchase both physical and virtual commodities. Metaverse commerce is a meeting of technologies: VR, AR, blockchain, AI, and others to create a socially connected and connected shopping space. It is particularly applicable to the retail industry, when it comes to enhancing the brand engagements, experiences, and consumption as a community, where fashion, luxury, and lifestyle brands are more interested in the long-term immersion of consumers instead of just a single purchase.

3D Visualization

The term 3D visualization is used to refer to presentation of a product in interactive 3D models which can be rotated, zoomed and viewed in different ways by the consumers. This technology boosts product information since it gives realistic images of products features, sizes, and beauty of products. The 3D imagery in immersive commerce reduces the information asymmetry and perceived risk hence increasing the consumer confidence and intention to purchase. The ability to provide high quality and transparent online and omnichannel shopping would aid the retailers in product positioning and brand loyalty.

Virtual Try-and-Buy

Virtual try-and-buy allows the customer to practically test a product prior to making a purchase with the help of immersive technology, such as AR, VR, and AI. This is most commonly used with respect to clothing, cosmetics, eyewear, footwear and accessories where a customer can view how the product would appear or would fit the customer in real time. Virtual try-and-buy enjoys greater perceived usefulness and pleasure and reduces the uncertainty and repudiation of the product significantly. It serves well in the Indian retail market to boost satisfaction, confidence and application of immersive commerce solutions by customers.

In-store Immersive Commerce

Physical retail space is the in-store immersive commerce that is the integration of the immersive technologies in the retail space, enhancing the shopping experience. Smart mirrors, interactive displays, product information with AR and VR experience

areas are all the technologies that enables it to reinvent a common store into a more entertaining experience. Through such interactions, the level of engagement of the customer, the length of engagement and attachment on the brand is increased. The in-store immersive commerce may assist retailers regarding the integration of omnichannels, particularly with aligning the physical touchpoint with the digital experience, which will add more experiential and competitive differentiation.

Social Immersive Commerce

Social immersive commerce involves both immersive technology and social interaction to enable customers to shop cooperatively through either virtual or augmented space. Such kind of trade will allow users to communicate with friends, influencers or brand representatives in real time during product discovery. Some of the features that facilitate trust, entertainment and peer influence are live immersive shopping, virtual showrooms, and socializing with the help of the avatars. The social immersive trade will be aligned with the new consumer behavior in which shopping is currently being considered as a communal and experience-oriented experience as opposed to an individual one.

Table 3.1

Types of Immersive Commerce and its Key benefits at a Glance

Type	**Core Technology**	**Key Retail Benefit**
AR Commerce	Smartphone-based AR	Accessibility & visualization
VR Commerce	VR headsets	Deep immersion
MR Commerce	AR + VR	Interactive realism
XR Commerce	Integrated immersive tech	Strategic scalability
Metaverse Commerce	Virtual worlds	Brand engagement
3D Visualization	3D modeling	Product clarity
Virtual Try-and-Buy	AR/VR fitting	Reduced returns
In-store Immersive	Digital interfaces	Phygital experience
Social Immersive	Live & social tech	Engagement & conversion

Complied by the Researcher

3.3.4 Immersive Commerce Characteristics

There are also a number of peculiar features of immersive commerce that distinguish it as opposed to traditional retail formats.

Interactivity

The concept of interactivity in immersive commerce is the capability of the consumer to collaborate with and interact with digital products and environments effectively and in real-time. Product rotating, zooming, in-store trials and interactive customization allow consumers to explore the product characteristics in a more effective way. This interactive participation enhances participation and further thinking process, thus amplifying product cognition and confidence in decision making.

Immersion

Immersion is the degree to which the immersive commerce locales produce a feeling of psychological presence, that is, the feeling that the consumers are a part of the virtual shopping scenery. AR and VR technologies enable consumers to have realistic simulating experiences, which narrow physical and digital retailing gap. This feeling of presence enhances the level of emotion and better shopping satisfaction.

Experiential Richness

Experiential richness refers to the combination of senses, emotional, and thought processes in immersive commerce to initiate compelling and lasting shopping experiences. Immersive commerce is an experience of shopping but not a transaction and is achieved through a blend of visual realism, interactive narrative, and emotional hints. This richness increases enjoyment, brand affinity, and satisfaction by the consumer.

Personalization

Personalization of immersive commerce means that content, product displays and interactions are personalized based on individual consumer preferences and

behaviors. Seriously relevant and perceived value of shopping experience is created through data-driven customization and less information overload. The immersion experiences offer personalized and enhanced engagements, satisfaction, and acceptance to immersive commerce technologies.

Reality and Virtual Presence

Realism Realism in immersive commerce is the level to which digital products and environments are accurate in terms of emulating real-world qualities, including their texture, scale, lighting, and spatial depth. A high degree of realism improves the aspect of virtual presence so that a consumer can test products more confidently as in-store tests. It lowers the perceived risk and uncertainty hence facilitating informed purchasing decisions.

Omni-channel Integration

Omni-channel integration is an indication of the smooth joining between the physical, online, and immersive touch points of retailing. Immersive commerce is expected to fill the gap between offline and online experiences because it provides consumers with a seamless channel across-channel transitions. Such integration boosts convenience, continuity, and trust during the overall retail experience that promotes the continuous interaction with the brand.

Engagement and Co-creation

In immersive commerce, it is not just passive consumption but active involvement where the consumer is involved in the creation of value through customization, exploration, and interaction. Immersive platforms enhance emotional attachment and perceived ownership by engaging the consumers in the product configuration and the experience design. This joint creative activity has a positive effect on satisfaction and purchase intention.

Spatial Visualization

Spatial visualization is the process in which the immersive technologies assist customers in perceiving the dimensions of products, their fit and placement in a real

or virtual environment. The AR-based room visualization and virtual layout allow making the product better understood and eliminate post-buying disappointment. This feature is especially useful in the furniture, fashion and home decor categories.

Technological Responsiveness

Technological responsiveness refers to the capability of the system to furnish the real time interactions without any delay or interruption. Quick loading, proper tracking and usability-friendly interfaces increase usability and reduce cognitive processes. A high responsiveness enhances consumer confidence in the immersive systems and it has a positive influence on shopping experience.

Emotional Engagement

Emotional engagement means the factor of immersive commerce to produce a positive mood of excitement, curiosity, and enjoyment in the course of shopping. Immersive commerce reinforces the affective reactions toward the brand through the establishment of stimulating and engaging environments. These emotional relations lead to increased satisfaction, recollection and loyalty.

All these features provide an improved consumer satisfaction, trust, and loyalty, which are essential results of retailers that practice the strategy of immersive commerce.

3.2.7 Problems of Immersive Commerce

Although immersive commerce is potentially successful, it is prone to a number of issues that could impede its internalization. Retailers have great obstacles due to high implementation and maintenance costs, complexity of technology, infrastructure constraints, and privacy of data. Moreover, the absence of standardization and interoperability of different platforms may also make integration with the current systems complicated.

As a consumer, issues of usability, accessibility, and privacy can be inhibiting factors. Motor sickness, mental overload, and inconvenience in the case of the extended use of immersive technologies are other issues that need to be carefully

designed and be user-oriented. It is necessary to overcome these limitations to achieve the full potential of immersive commerce.

Immersive commerce is a radical change in retailing that will alter the consumer experience with products, brands and shopping experiences. Through the combination of immersive technologies and the principles of experiential marketing, immersive commerce fills the physical-digital divide of the retail system and provides greater engagement, customization, and value generation. Although some issues still lie in the area of cost, infrastructure, and consumer readiness, the strategic advantages of immersive commerce make it an indispensable aspect of retail strategies in the future. Immersive commerce is set to dominate the next stage of retail transformation, as experience-based differentiation and customer-centric innovation are the topics of growing interest among retailers.

3.3 Immersive Commerce Acts as a Strategy

Experience commerce goes hand in hand with the spirit of experiential marketing that is based on the idea of generating a memorable and interactive experience among consumers instead of just concentrating on the functionality of products. Pine and Gilmore (1999) argue that experiences are a unique economic product which can be used to create a competitive advantage. Immersive commerce realizes this idea by integrating the aspects of the experience into the shopping experience.

Immersive commerce decreases perceived risk and increases attachment to brands in consumers by allowing them to experience before they buy. This experience aspect is especially noteworthy in modern store settings, where customers are looking to be refreshed, entertained, and involved in addition to convenient and affordable. Immersive commerce therefore serves as a branding instrument, customer relationship, and building long-term relationships.

Strategically, immersive commerce provides retailers with several advantages, such as the expansion of customer engagement, better product knowledge, lower rates of returns, and brand positioning. Physical and digital touches are the two touch points

where the retailer can develop seamless and consistent experiences by applying immersive technologies in their omnichannel strategy (Verhoef et al., 2015).

Immersive commerce will also facilitate innovation and flexibility in the fast-evolving retail settings. With the increased competition and the changing needs of consumers, immersive commerce allows retailers to test new formats, new business models, and value propositions. Immersive commerce in the emerging markets like India has a great potential to modernize retail infrastructure and increase competitiveness especially in urban and organized retail arena.

3.4 Indian Retail - An Overview

Indian retail industry is one of the most dynamic and high moving factors of Indian economy that has contributed to the economic growth and creation of job. As a naturally diverse space, the Indian retail industry is comprised of the structured and unstructured segments, with extensive assortment of products and services it provides, such as Clothing and Fashions, Food and Groceries, Furniture and Apparels, Electronics, and tele-communication among others, traditional family-owned shops or kirana stores, which is largely controlled by the small sector, has seen a major change in the past 20 years, fueled by the urbanization process, economic liberalization, increased incomes, changing preferences of the customers, and the

India is one of the largest retail markets in the world with its retail market estimated to be worth more than USD 950 billion in 2023 and projected to be USD 1.5 trillion in 2030 (Deloitte, 2023). Chain stores, supermarkets, and online platforms make up organized retail, and currently represent about 1215 percent of the overall market but are expected to expand at a very fast rate with more investment and a shift in consumer behavior (PwC India, 2023). Favourable government policies, including 100 percent Foreign Direct Investment (FDI) in single-brand retail and the rising infrastructural development (especially in the tier-II and tier-III cities) contribute to the expansion of an organized retail (Ministry of Commerce and Industry, 2024).

The emergence of e-commerce has raised the issue of the issue of the transformation of the retail environment, in applications such as Flipkart, Amazon India, and Reliance Retail that are taking advantage of mobile internet access and popularity of digital payments (KPMG, 2023). The COVID-19 pandemic expedited the adoption of digital programming even by the traditional retailers to have online and omni-channel strategies in order to compete with others. The boundaries of online and offline retail are therefore becoming more and more blurry, leading to so-called phygital experiences, which merge physical experience at the store with online convenience (EY India, 2023). The other shift in position is the introduction of consumer-centric retailing where the improved quality of service and customized shopping experiences are emerging as major points of differentiation. Gen Z and millienial population makes a significant part of the Indian demographic dividend and reinvigorates the retail demand with a more value-focused approach, brand ethics, and digital interaction (BCG, 2024). Nevertheless, even with this potential, the Indian retail industry is challenged with a lot of issues, among them infrastructural congestion, financial intricacies, ineffective supply chain and global competition. Unorganized sector, which is about 85 percent of the market, is still fragmented and hard to formalize, but with digitization and government initiatives such as GST and UPI, the divide has already commenced to reduce (NITI Aayog, 2023).

Additionally, inflationary forces, the changing geopolitical landscapes and swift technological upheavals demand retailers to be flexible, creative and resolute. However, the Indian retail market is still hoping to see a brighter future, which is supported by a good macroeconomic fundamentals, technological penetration, and age-driven aspirational consumers. The retailers that will be able to make the best use of data analytics, immersive technologies such as augmented reality (AR) and virtual reality (VR), and sustainable supply chains will probably gain a competitive advantage in this changing marketplace. Since India is on the path towards the 5 trillion economy, the retail industry is set to be central in the consumption-led growth narrative in the country and making India a global retail powerhouse (McKinsey & Company, 2024).

Figure 3.2

Evolution of Immersive Technology in Indian Retail



Compiled by the researcher

The figure shows the history of the evolution of the Indian retail industry, with the slow inclusion of immersive technologies as a part of the overall digitalization of the industry.

The first step is Traditional Retail (Pre-2000) where physical stores prevail, face-to-face communication is the norm, products are not well displayed on shelves, and there is a lack of use of online technologies. In this stage, consumers relied mainly on in store atmosphere, face to face interaction with sales people and the physical handling of products and there was no much room to personalize or enrich the experience (Grewal et al., 2009).

The second stage is E-commerce Boom (2000-2010) whereby the Indian retail has seen development of online marketplaces as a byproduct of higher internet penetration and primitive online payment systems. The relations between retailers changed to online stores with a broader product selection, transparency in prices, and convenience. Nevertheless, this step was, to large extent, transactional, based on fixed images and textual descriptions, which restricted the level of sensory appeal and consumer trust in buying decisions (Laudon and Traver, 2018).

The Mobile Commerce Phase (2010-2015) is a symbol of the high usage of smart phones and accessibility of cheap mobile data that changes the shopping habit in India. Retailers streamlined the mobile interfaces platforms and made them available everywhere and at any time of the day. The mobile applications brought more convenient and responsive experiences that formed the basis of real-time interaction and data-driven personalization, but immersive features remained mostly non-existent (Pantano and Priporas, 2016).

This was then succeeded by the Omnichannel Retailing Phase (2015-2017) which focused on the seamless integration of online and offline retail channels. Indian retailers implemented click-and-collect, single stock system, and standardized brand experience. This stage was the strategic turn to customer-focused retailing, balancing the digital convenience and trust to physical stores, and building a setting where the immersive technology could be integrated (Verhoff et al., 2015).

The use of Immersive Technology in Retail (2017-2019) is a turning point, with retailers initiating the experiment of augmented reality (AR), 360 views of products, interactive digital product catalogues, and smart mirrors. These technologies overcome the most significant shortcomings of the traditional e-commerce in terms of product visualization improvement, mitigation of perceived risk, and the confidence in decision-making. Most of the early adopters were found in the areas of fashion, beauty, furniture, and electronics retail (Javornik, 2016; Hilken et al., 2017).

The Early Adoption Stage of Immersive Commerce (2019-2021) is an indication of a wider adoption of immersive solutions, which has been accelerated by the COVID-19 pandemic. Retailers were forced to implement virtual showrooms, AR try-ons and in-store experiences to keep consumers involved in lockdowns and limited access to stores. The concept of immersive commerce at this stage turned into an innovation and a working strategic instrument, increasing customer attention, experience, and confidence in online platforms (Flavián et al., 2019).

The next stage, Integration of Artificial Intelligence (2022-2024) is the reflection of the convergence of immersive technologies and AI-driven systems. Retailers were progressively using AI to personalize and recommend, predictive analytics as well

as intelligent virtual assistants in immersive settings. This connection made it possible to experience that was adaptive and context-aware, turning immersive commerce into a scalable and data-driven retail approach that can be relied on to drive business performance and long-term competitiveness (Dwivedi et al., 2023).

Lastly, the Metaverse and Beyond (Post-2025) stage commemorates the future of Indian retail as virtual world environments are persistent, digital avatars are in use, ownership has been established through blockchains, and social commerce is immersive and transforms consumer-brand relationships. The retailers have been anticipated to develop integrated virtual ecosystems that are both physical and digital and provide experience-based, community-based, and value-co-creation types of shopping. This stage marks the move towards channel integration totally immersive retail ecosystems, and immersive commerce is an emerging force in Indian retail (Mystakidis, 2022).

Retail Sector in India Market size

By 2024, the Indian retail market is predicted to reach approximately 82 lakh crore (1 trillion USD) rendering the nation to be the fourth largest retail market in the globe as well. This is a massive growth relative to approximately 35 lakh crore in 2014 and the growth rate of this is approximately 8.9 per cent annually over the past 10 years. As long-term outlook remains optimistic, the industry will reach the mark of 190 lakh crore (approximately 2.3 trillion USD) by 2034 due to such aspects as urbanization, high incomes of the middle-income population, and the growth of consumer spending. An organized and unorganized retail market is separated in a broad manner. Even though the traditional kirana remains dominant and the informal retailers occupy the largest share, there are other players whose presence is organized retail or use of malls, supermarkets and branded chains that occupy about 12 per cent 15 per cent of the total market share. Indeed, even within the e-commerce alone, the segment increased to close to 19 percent CAGR to hit almost 147.3 billion USD in 2024. This is also being significantly contributed by the Tier II and Tier III cities as the smartphone penetration increases and the use of digital-readiness rise. The retail industries are now dynamically developing and it can be

ascribed to the diversity of the Indian consumers and integration of both the digital and physical retailing processes. The diagrams below indicate the market size of Indian retail sector between the year 2014 and 2024.

Retail Major Player and Segments

Fast-Moving Consumer Goods (FMCG)

FMCG segment, which is comprised of food, beverages, personal care, cleaning products and household essentials is one of the largest and most competitive retail segments. The massively organised players include Hindustan Unilever Limited (HUL), Procter and Gamble (P&G), Nestle, ITC Dabur and Patanjali that offer wide range of products at urban and rural locations. The penetrations that have been achieved by these companies involve association pool, advertising, and technology. At the same time, an extremely large network of unstructured kirana stores, which is the main selling point in the semi-urban and rural areas, has the fundamental selling point of convenience, credit, and personal relationship. Even digitisation has gone at a very high rate in the segment with JioMart, Amazon Pantry, and Blinkit beginning to form partnerships with small retailers to create hybrid models. The emerging trends of the segment growth are increasing coverage in rural areas, premiumisation and the innovations, which are health-based.

Apparels and Fashion

The shift of consumers in tastes, higher disposable income and the astounding growth of fashion are the defining success factors in the establishment and expansion of the apparel and fashion industries. Zara, H&M and Uniqlo are some of the global brands which compete with Aditya Birla Fashion and Retail (Pantaloons, Allen Solly), Reliance Trends and Arvind Fashions. City dwellers can find multiple brands and numerous items offered by the departmental stores such as Shoppers Stop and Lifestyle. Myntra, Ajio and Meesho are e-commerce platforms that are transforming the way individuals shop garments. They enable the consumers within the nation to purchase branded and unbranded clothes. The unstructured sector

continues to operate, comprising of the street vendors, the local tailors and the traditional markets.

Consumer Electronics and Appliances

The consumer electronics and appliances segment consists of mobile phone such as smart phone, laptops, desktops, kitchen appliances, Television, and white goods. The market leaders are Croma (Tata), Reliance Digital, Vijay Sales and brand-owned stores by Samsung, Apple, Mi, At this point and OnePlus. Internet-based companies such as Amazon and Flipkart have transformed the way individuals purchase electronics by providing competitive costs, financing services, and delivery to the home. Other services such as insurance and installation are also promoted in such companies which promotes innovation. Nevertheless, the disorganized retailers such as small electronic stores and local retailers continue to contribute with the localized service and fast repair as well as offering individualized deals. Although big-box stores and e-commerce are more popular with the consumer population in the city, the rural and semi-urban population continues to depend on their local sellers when it comes to credit and trust in the transaction. The technological development, holiday sales, and low prices have a huge influence on this segment.

Grocery and Food Retail

The consumers are highly connected with food and groceries since it is the component of daily consumption patterns.Therefore this segment, however, influences the retail and the customer desires more on day-to-day basis. The largest divisions in the grocery and food retail are dairy, fruits, vegetables and groceries, packaged foods, and beverages. Formal competitors such as Reliance Smart, D-Mart, Big Bazaar, and Nature's Basket have established chains of supermarkets in the urban regions. Blinkit, Zepto, and Swiggy Instamart are some of the firms with quick-commerce that are transforming the way individuals shop groceries in urban areas due to their quick delivery. The large online groceries (JioMart, Amazon Fresh, and BigBasket) are yet to develop their strategies. Nevertheless, approximately 90 percent of grocery retail in India is done in a kirana style, street vendors, and local mandi, in the rural and semi-urban areas. These conventional

retail offer familiarity, personalized service and credit facilities, which contribute towards good customer loyalty. They are also getting intertwined with the digital payment systems.

Home Furnishings and Furniture

This segment is indicative of interior style and life of the customer particularly urban millennials and nuclear families. Home decor, home furniture, kitchen fittings, lights and bedding. Online sales, ready-to-assemble, and high-end furniture are provided by organised players such as Pepperfry IKEA, HomeTown, Urban Ladder, , and Godrej Interio. These retailers provides the newest and the trending designs, financing, and customization. Actually, Local stores and carpenters still serve the disorganized segment where affordable custom-made furniture is provided according to the particular space requirements. Traditional furniture stores and units run by family are common in small towns and rural areas. In the market, online retailers such as Flipkart and Amazon are also huge with value propositions. This segment also guarantees on modular innovation, sustainability and eco-friendly availability to its customers.

Health and Pharmacy Retail

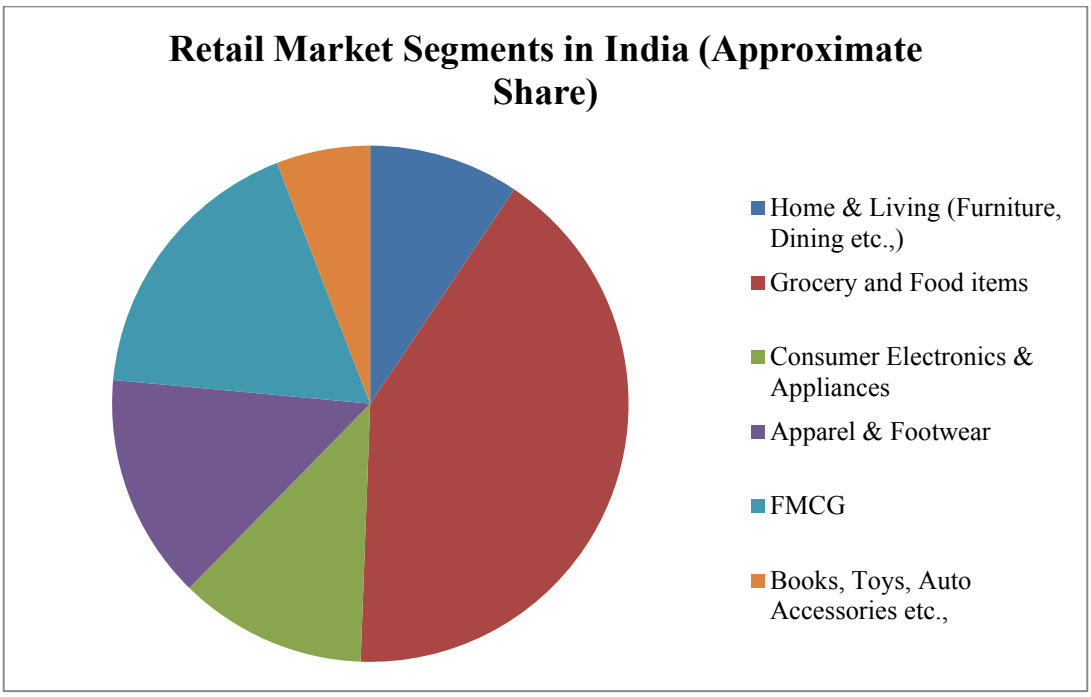
The pharmacy and health retail store entails drugs and medication, wellness merchandise, health supplements, and health gadgets. These are sold on the prescription of medical practitioner. The main competitors include Apollo Pharmacy, MedPlus, Wellness Forever, and Guardian Pharmacy that provide reputable brand- and standardized services. This segment covers health care institutions such as online diagnosis, medical delivery and virtual consultancy is realized using online health solutions such as Netmeds, 1mg (Tata), and PharmEasy. These platforms foster to time-starved consumers and the remote and rural ones. Nevertheless, unstructured local chemists are still present particularly in the tier-1 and rural regions, which provide credit, local language support and emergency supplies. The pandemic increased the use of digital and regulation in the segment. The trend of growth is being fuelled by the rise in health awareness, management of chronic disease, and government incentive on healthcare infrastructure. The other

critical success factors of this segment are still trust, reliability, and last-mile delivery.

The Following is a pie chart that demonstrates the market share of key retail environments in India.

Figure 3.3

Market Share of Major Retail Segments in India



Compiled by the researcher

Grocery and Food Items (35 percent) dominate since it is also daily expenditure according to daily consumption requirements. Others like FMCG, Apparel and Electronics are also significant; specifically the markets of the urban and tier-2.

On-line Markets and E-Commerce

E-commerce is a trend that operates in all segments thus allowing direct contact to the customers around the globe. The online market place was dominated by major competition such as Amazon, Flipkart, Myntra, Ajio, Nykaa and Meesho. These channels have several segments such as white goods, fashions, FMCG and beauty products, such as kitchen apparels. They are developing at an accelerated rate in

metropolitan and other urban cities with user-friendly applications, digital wallets, and extensive logistics networks. Meesho and WhatsApp-based selling represent social commerce that is assisting small enterprises and unorganised retailers to move to the digital world. Tata Neu, JioMart, and Reliance Digital are hybrid retail approaches, which combine offline and online platforms. Another aspect of e-commerce is that it offers modifications in data analytics, supply chain and customization in flash sales and festivals. The influencer marketing will be significant in the acquisition of the consumers. The segment is being highly controlled in order to produce quality of the product, data protection, and healthy competition.

Effect of Tier1 and Tier II growth

Tier II and III city is fast emerging in India and is altering the retail and consumer situation of the country radically. Relying on the findings and the opinions gained during the sample study, it could be stated that the conventional issues of inaccessibility, awareness, and affordability is no longer an inhibitor of this new urban hub. Rather, they are becoming a focus of lively consumption with the infiltration of sound infrastructure, online penetration and aspirational tendencies of a consumer.The analysis has found Tier II and the Tier III city consumerism being mature in brand awareness and online preparedness. The convenient access to smart cellular phones at a reasonable price, omnipresence of the internet connection, and the integration of the digital format of payments such as the UPI have made the customer in these regions be more prolific in the e-commerce model. The vast majority of the people surveyed in such cities were involved in online purchases and often ordering fashion products, electronics, and personal care products in addition to determining that they were moving to a retail format that only locals were switching to a format that included both online and offline retailing. The other emergency observation on the sample studied was the quality and convenience uprising need. Although price is one of the factors, customers are not so reluctant to buy goods with a higher price, good quality of service and timely service. This

forms the lives of the transformations in dreams and the emergence of a new generation in the middle classes that emulates the consumption life in cities.

In addition to that, these cities are being strategically invaded with churches and brands opening brick and mortar stores, offering last mile delivery and tailoring their ad campaign to fit the consumer. With such emergence, the variety of the consumer base is not only in the addition but also diminishes the obsessiveness with the metro cities. Overall, one can make a conclusion that the new nexuses of power, including Tier II and Tier III cities, that were observed in the sample study, represent the transition to the comprehensive evolution of retailing. These cities are now a virgin land to be explored by the businesses that have a glimpse of this new breed of consumers in India who is connected to the internet, aspirant and willing to conduct business with a new breed of retailing formats.

Key drivers of Retail growth

Retail growth is pushed by major factors and these factors enhance retail growth and interaction with the customers. The technology in terms of online sales, mobile services and data analytics have altered how retailers interact with the customers so as to deliver the personalised experience and ease of access. The buying power has been experienced in the emerging economies through increasing middle class and disposable income. The urbanization and the improved infrastructure also advance the development of arranged retail forms. Substitution of consumer preferences as a result of change in lifestyle and brand recognition also plays a highly crucial role. Additionally, the government schemes that facilitated foreign direct investment (FDI) liberalization stimulated the retail growth and, supported digital payment system. The incorporation of the strategies of the omnichannel, which is a blend between the online and offline customer experience, has been required to attract and retain customers. Later, it is efficient and responsive to the needs of the market due to the newly developed supply chain management and inventory systems. All of these drivers combined cause a stable structure of vitality of the retail industry to assist it in sustaining growth and competitiveness.

Government Programmes

The Indian government has embarked on some radical plans which are applied in an attempt of accelerating the economic growth, and digital infrastructure growth and entrepreneurial growth. Two towering introverts include Digital India and Startup India that have caused an exceptional presence in the business environment including the retail, technology and innovation fields.Both launched in 2015, Digital India is the initiative to transform India into a digitally empowered society and the knowledge economy. It is also interested in improving cyber infrastructure, making internet access more accessible to more people, and digital literacy (Ministry of Electronics & IT, 2023). The retail market has become digital in terms of payments that can be spread due to the introduction of Digital India where the online marketplace and logistics have enabled the small and medium retailers to access broader markets through the use of UPI, e-commerce applications, and QR-code payments.Similarly, Initiatives like Startup India, launched in 2016, is going to promote innovations, support entrepreneurship and reduce regulatory pressure. The program is providing tax incentives, simplified registration of compliance procedures, and investments in programs like the Fund of Funds for Startup (FFS) (DPIIT, 2024). This has seen India come out as the third-largest start-up ecosystem in the entire world that is eminently represented in fintech, health tech, retail tech, and immersive commerce.

The other significant programs include Make in India that promotes local production as well as restricting dependence on imports and Atmanirbhar Bharat (Self-Reliant India) established in the context of the COVID-19 pandemic duties to enhance capacities and digital transformation locally. Collectively, these policies offer a good business climate to digital commerce, retail innovation, and employment.

The Technological Indian Retail

The retail businesses in India have recorded significant technological advancement where it has evolved the traditional business to the present-day modern and technologically advanced ecosystems. Utilizing electronic payment methods of UPI, mobile wallets, and contactless cards has made transactions faster besides making

customers convenient. The market has been further extended by online stores and phone applications to even the rural location where retailers can access the end consumer in the urban and rural locations. Hand-crafted marketing, inventory control, and optimization of consumer behavior are being implemented using technologies including artificial intelligence (AI), machine learning, or data analytics. The shopping is being enjoyable with self-checkout kiosks, smart shelves, and augmented reality (AR) innovations in the stores. In addition, RFID and IoT digitization of the supply chain will offer effective supply chain logistics and real-time tracking of assets. The new are combined offline and online retailing (i.e. omnichannel strategies) that offer an all round seamless experience to the customers. This is not only developing operational efficiencies but also developing new expectations of consumers in the dynamic Indian retail landscape.

Difficulties in the Technology Adoption Process

The process of implementing new technology is often full of challenges that do not allow a smooth implementation and effectiveness. One of the most significant challenges to overcome is the resistance to change especially among the members of staff who were accustomed to the old systems or feared of losing the job. The psychological inertia may reduce the duration to action and general effectiveness. There is also the issue of costs, which is a major setback as merely acquiring, maintaining, and upgrading technology infrastructure will cost a sizable amount that small or low-financed institutions might not afford. The other problem is digital illiteracy and inadequate training. Tools do not make people good and the lack of sophistication in the tools cannot compensate a lack of sophistication in the user. In addition, interoperability issues might also arise where the new technical products would not be coordinated with old ones resulting in data silos or disrupting workflow. There is also the concept of cyber security that contributes to the extent to which organizations would adopt such digital solutions enthusiastically to ensure that they do not subject themselves to vulnerabilities and data breaches.

In addition, regulatory and compliance limitations can deter the rate or level of technology adoption, especially in highly regulated sectors, like finance, or health

care. Finally, organisations may have a hard time measuring the ROI on new technologies, which is why they might not be able to demonstrate the ROI on the investment in case they choose long-term deals. Addressing these obstacles requires proper planning and involving stakeholders and also provision of follow up.

Limitations on Infrastructure and connectivity

One of the major discouraging factors of successful integration and application of technology particularly in the developing world is the infrastructure and connectivity limitations. Poor Internet connectivity, electricity failures, and old hardware may severely reduce the efficiency of digital tools and platforms. The world still has numerous remote or semi-remote regions that lack ready connectivity to high-speed internet and unreliable connectivity may be an obstacle to services (real-time data processing, cloud computing, and other technology-related processes) that demand current bandwidth rates.

The limitations are especially severe in the industry that relies on frictionless digital interaction, e-commerce, fintech and immersive retail. In the absence of good infrastructures, deadlines are set, operational costs increase and customers become frustrated. Moreover, in the urban rural distance on technological distance, several individuals are left out and unable to reap the benefits of the digital economy.

The more advanced technologies like 5g, fiber optics or IoT infrastructure, are also unavailable and it is harder to be innovative and to scale. Small companies and new ventures lack capital to modernize and enhance the infrastructure in use, hence subjected to competitive disfavors. On top of this, weak support systems of technical support and maintenance services exacerbate these issues and take extended downtimes and consequently reduced general efficiency.

These barriers will need to be tackled with the assistance of instruments, including state-entrepreneurial interaction, modifications to the policies, and special regulation of the evolution of the digital infrastructure so as to stimulate regional equality and eco-friendly technological rates.

Digital gaps and incompetence

The combination of the competencies, as well as the search, interpretative, judgment and usage abilities connected with the digital technologies, is called the digital literacy. In the contemporary dynamic digital age, digital competencies are very essential so that one can guarantee that a person, an organization and the economy are competitive. However, the technological advancement in this world is well above the ability of people to harness the might of such machines especially in the third world nations.

The issues that prevail in the skill gaps in digital literacy include the lack of knowledge of basic communication on how to use a computer or the internet orientation, the lack of information on a usage of cybersecurity tools, productivity, and communication tools. Such inequality is also expanded by other observations such as the social economic status, education, age and geographical location. Such loopholes at the work place undermine the adaptability of the individuals to accept digital transformation in their productivity, creativity as well as employability.

The gateway to this divide is developing an expanded digital learning, upskilling, and certain policies which will support a massive use of technology. The schools and other privately owned institutions and the government are supposed to work in conjunction in the delivery of the available digital training programs. The move toward enhancing the digital literacy is not just a welcome initiative in empowering individual in his or her digitally enabled journeys but also activates the economic growth as it is among the avenues through which an individual can venture into the digital economy. Today, when the digitalization industry gained new dimensions, it is required to cross the digital skill gap, as it has to facilitate the distribution of the system, and all people should be capable of joining the digitalization world.

Retail after COVID-19

The COVID-19 significantly altered the retailing landscape in the international arena, prompting the swift development of digital technologies and the shift in the consumer activity. Both retailers and consumers needed to rethink the traditional

shopping experience because of the need to socially distance, lockdowns, and hygiene consciousness. Digital retail has therefore not only been made possible but has also become a necessity. The retailers acted with speed within a short period to put technology into place that could be safe, efficient, and capable of maintaining functionality. It was more particularly echoed by the boom of online shopping, the hyperlocal delivery industry, the launch of contactless solutions, and other forms of reliance on technologies, such as QR codes. Besides, health and safety were now significant components of the retail experience and even influenced the store design, interactions with customers and even marketing strategies. All these changes combined are a scheme of the fundamental transformation of the retail, which is likely to persist even beyond the pandemic period.

Digital Shopping Expansion and Delivery to Neighborhoods Models

The advent of the COVID-19 has led to an online shopping boom that has never been witnessed before. With the physical stores shut down or getting only basic functions, individuals turned to e-commerce to get the needs and even the luxuries. As a result of the fast development of the online sale market globally, retailers across the globe resolved to enhance their online presence. Both groceries and clothes, all the categories experienced growth in digital demands. It also created the neighbourhood delivery models, where local stores utilised technology in offering rapid deliveries to local geographical locations. The popularity of these models can be linked to the fact that they imply same-day or even one-hour deliveries particularly in the urban and semi-urban areas.

They were able to succeed since hyperlocal platforms bridged the divide between the physical stores and the tech-savvy consumers, by organizing the stocks of their local stores and offering an easy-to-use app experience with online ordering. The startups and logistic partners did not fall behind either since they have also integrated the application of AI, real-time schedule tracking, and the most effective route optimization. The adaptability of the hyperlocal services contributed to the survival of local business and their ability to continue delivering as per the needs of the consumers in the disruptive reality that the crisis resulted in. Such models are so

essential after the pandemic, in particular, because they are convenient and fast. The retailers have already understood that they must implement the strategies of omnichannel that leverages the advantages of both physical and digital presence by becoming strong and agile in the future conditions. Immediacy that initially began as one of the new features is now becoming as a routine where consumers have increasingly demanded more and more innovations.

Cyber security and Data Privacy Concerns

The problem of cyber security and privacy is becoming one of the most critical ones in the face of the ongoing penetration of digital technologies in the sphere of retail and business. A massive amount of sensitive customer data has accumulated as a result of implementation of e-commerce, immersive commerce, cloud based platforms, AI based tools and analytical data about customer possesses. They are personal identification information, payment, shopping tastes, and tracking the location, which once they were not secure enough, can also become a victim of a cyber attack.

More pressure is being mounted on retailers to guard this information against attack, theft and exploitation. In the event that brands are affected by the data leak scandals of high profile, the confidence of consumers and thus brand image can be destroyed significantly resulting in fines and losses. Moreover, the customers are becoming more aware of how their data is collected and used, and they require the possibility and visibility of their online tracks.

There should be a high degree of cybersecurity environment, which includes, but is not limited to encryption, secure payment gateways, multi-factor authentication and the compliance with the data protection laws (and regulations) (e.g., GDPR, India Digital Personal Data Protection Act). However, small and medium scale retailers are usually not in the position to implement comprehensive data protection practices due to their lack of capabilities and knowledge. The state on cybersecurity and data privacy should be managed in order to provide business continuity and corporate security and, at the same time, establish customer confidence in the long term in an online-based shopping environment.

Future Trends and Road Ahead

Since the pandemic, the retail environment has been changing at high speeds due to emerging technologies and shifting consumer expectations. The retail industry will also experience another change surge due to increased adoption of digital. Any innovations that enhance sustainability, transparency, and personalisation tend to influence the future trends. Retailers seek to spend increased amounts of money on immersive technologies, blockchain solutions, environmentally-friendly processes, and AI-enabled devices to stay competitive and meet modern demands. These advances re-evaluate the core aspects of retail, including supply chain and customer service, as well as re-establishing the customer engagement.

Immersion commerce is a type of business that allows clients to engage with products in the most realistic and engaging ways possible, thanks to the power of augmented reality (AR) and virtual reality (VR). Immersion commerce reduces the unwillingness to purchase and increases satisfaction. Examples virtually trying on clothes or shopping on a store that is in three dimensions. The whole shopping process is enhanced through formation of experiential touchpoints which are digital and physical retail.

The blockchain technology will transform the supply chain transparency. Blockchain can be used to prove the provenance of goods; their authenticity and whereabouts due to their protection on immutable records. It is especially crucial to those industries such as food, pharmaceuticals, and luxury goods where the key element is trust and traceability.

The key drivers of brands are becoming green retail technology and sustainability. Customers have begun to remain loyal to eco-friendly businesses that use less water and conserve energy and resort to ethical sourcing. Retailers are also using new products to attain green goals or objectives and cut down operations costs like the energy-efficient smart stores, digital receipts, and circular supply chains.

Finally voice commerce and AI chatbots are transforming the relationships between consumers and brands. Voice-assisted purchasing and assistance through AI

chatbots simplify the process of purchasing and finding products and allows them a personalized and immediate approach to the issue. The above tools ease and simplify the act of shopping and managing the customers, shaping a shopping experience that becomes much simpler and faster. All these trends combined with one another create the latest stratum of innovation in retailing business - the fusion of genius, eco-friendliness, and experience in enterprises.

3.5 Theories of Immersive Commerce

The Theories implemented to study the immersive commerce and its effect on retailing are explained below;

3.4.1 Technology Acceptance Model (TAM)

The model that can be used to explain the impact of the perceptions and views of the usefulness and ease of use on the implementation of immersive commerce technologies by the retailers is the Technology Acceptance Model (TAM) (Davis, 1989). TAM helps to clarify that the opportunities of Indian retailing, including the enhanced customer engagement and visualization of the product as experienced, contribute to the perceived usefulness, and thus encourage the improved adoption of immersive commerce. The perceived ease of use is also reduced by the complex nature of the system, the absence of training, and unfamiliarity with technology, which leads to hesitation of retailers to adopt solutions based on immersion. Therefore, Technology Acceptance Model lies at the core to explain the acceptance, behavioral intention and willingness of the retailers to integrate immersive commerce into their business activities. (Davis, 1989)

3.4.2. Unified Theory of Acceptance and Use of Technology (UTAUT)

To explain the behavior and actual use of the immersive commerce technologies by retailers, the Unified Theory of Acceptance and Use of Technology (UTAUT) offers an overall concept of how performance expectations, effort expectations, social influence, as well as facilitating conditions can influence it (Venkatesh et al., 2003). Performance expectancy in the context of the Indian retail is connected with the idea that immersive commerce will increase customer experience and business

performance, whereas the expectation of effort concerns the issues of technological complexity and skills of the workforce among retailers. Implementation success depends also on facilitating conditions, which include infrastructure, digital preparedness, and support by managers. As such, UTAUT assists in determining organizational obstacles plus adoption catalysts in immersive retailing setting. (Venkatesh et al., 2003)

3.4.3 Diffusion of Innovation Theory (DOI)

The Diffusion of Innovation (DOI) theory explains the behavior of immersive commerce diffusion amongst the retailers basing on the perceived features like the relative advantage, compatibility, complexity, trialability, and observability (Rogers, 2003). The relative benefits of immersive commerce to Indian retailers are evident in the fact that it will provide a better experience in the shopping process, competitive distinction, and product visualization. This adoption is however constrained due to issues of complexity in its operations, gaps in its infrastructure and issues of investment. DOI assists in discovering why the first to adopt strategies have a strategic advantage and how perceived opportunities can lead to innovation, and issues and threats decelerate the process of larger retailing market adopting innovation. (Rogers, 2003)

3.4.4. Resource-Based View (RBV)

According to the Resource-Based View (RBV), competitive advantage is based on specific, unique, rare, and imitability resources, which in the case of this paper are immersive technologies and scale abilities (Barney, 1991). The retailers can create strategic assets, which include the customer experience, personalized interactions, and better product interactions through the use of immersive commerce and this will in the end lead to business performance. Applied to the case of Indian retailers, RBV describes how the investment in the use of AR/VR possibilities, digital talent, and technological infrastructure causes the high-performance results, and insufficient funding or technological expertise interfere with the development of the competitive advantages. (Barney, 1991)

3.4.5. Stimulus-organism response (S-O- R Model)

The S-O-R model states that the external factors produce an impact on the internal organismic states which in turn cause a behavioural reaction (Mehrabian and Russell, 1974). AR/VR-enabled elements of stimuli in immersive commerce in the case of virtual try-on, 3D interactive products and immersive store experience can be example stimuli. These stimuli influence internal states including customer satisfaction, engagement, trust, and involvements, which eventually result in behavioural response, including loyalty, repeat purchase intention, and positive word-of-mouth. In the case of Indian retailers, S-O-R is useful in explaining the relationship between immersive experiences and consumer loyalty and perceived value. (Mehrabian & Russell, 1974)

3.4.6. Customer Experience Theory

Customer Experience Theory states that the experience that is memorable, involving, and experience-enriching to customers is one that can have a strong influence on consumer perceptions and satisfaction, as well as their loyalty (Pine and Gilmore, 1998). Experiential Imagine an online shopping feature that embodies a sense of experience through the creation of virtual environments that can be interacted with, technology that allows the exploration of products individually, and customer experiences that are emotionally charged. This theory, as applied to the case of Indian retailers, is prone to the belief that AR/VR-powered experiences enhance brand perception and loyalty, so experiential enhancement of retailing is one of the major opportunities of immersive retailing. (Pine & Gilmore, 1998).

3.4.7. Relationship Marketing / Theory of Commitment / Trust

Commitment-Trust Theory is a theory which states that the relationships are flourishing when there is high level of trust and commitment (Morgan and Hunt, 1994). Authenticating AR try-ons and apprehensible virtual store experiences in immersive commerce form consumer trust and loyalty. The given theory can be applied to Indian retailers by stating that immersive technologies can be utilized to boost customer relationships in the long-term by increasing confidence, satisfaction,

and emotional attachment and contributing to loyalty and re-engagement. (Morgan & Hunt, 1994)

3.4.8. Technology-Organization-Environment (TOE) Framework

Technology-Organization-Environment (TOE) model is used to describe the implementation of immersive commerce by assessing three dimensions of technological preparation, organizational capability and environmental pressure (Tornatzky and Fleischer, 1990). The technological factors are AR/VR complexity and system integration, the organizational ones are skills of staff, financial resources, and strategic intent, and the environmental ones are competitor adoption, customer expectations, and market dynamics. TOE is applicable in the Indian retail context to describe the operational and strategic issues that discourage the implementation of immersive commerce. (Tornatzky & Fleischer, 1990)

3.4.9. Perceived Risk Theory

Perceived Risk Theory holds that, people will evaluate the losses that could be incurred in case of making a decision before adopting new technologies (Bauer, 1960). The retailers of immersive commerce face risks of financial investment, data privacy, cybersecurity, performance uncertainty, and disruptions of the operations. These dangers cause uncertainty and have an adverse impact on adoption and implementation. A perceived great risk is usually a significant obstacle in Indian retailing, particularly among the small and medium retailers who lack the technological knowledge. (Bauer, 1960)

3.4.10. Adoption Resistance Theory

Adoption Resistance Theory Adoption Resistance Theory is the theory stating that resistance is caused by the functional (complexity, cost, performance uncertainty) and psychological (tradition, image, perceived risk) barriers which prevent technology adoption (Ram & Sheth, 1989). In case of immersive commerce, retailers might be opposed to adoption because of a perceived complexity of technologies, inclusiveness to customers, ignorance, or resistance to change. The

theory applies to the Indian retail setting whereby numerous retailers are reluctant to implement AR/VR systems yet they can reap the advantages. (Ram & Sheth, 1989)

3.4.11. Dynamic Capabilities Theory

The Dynamic Capabilities Theory holds that organizations need to constantly feel the presence of new opportunities, utilize the technological inventions, and reorganize the available internal resources to remain competitive (Teece et al., 1997). To achieve immersive commerce, dynamic capabilities can assist a retailer in defining the growth prospects in the future, innovate around AR/VR applications, and transform their business model to respond to the new digital trends. This theory can be used in Indian retail to grasp the opportunity of how immersive commerce may influence long-term innovation, market development, and strategic change. (Teece et al., 1997)

3.6 Conclusion

The chapter has given a broad theoretical base to look into the aspects of immersive commerce in the modern Indian retailing scenario. Through the systematic synthesis of ideas in the literature of immersive commerce, research on retail transformation, and previous theoretical frameworks, the chapter places the immersive commerce as a thoughtful and experience-based developmental formulation of the classic e-commerce, as opposed to technological upgradation of the same. As highlighted in the discussion, the core idea of immersive commerce is the ability to transform how consumers and retailers interact with each other, as it facilitates interactivity, immersion, personalization, and the richness of experience, which has long been missing between the physical and digital store setup.

In the chapter, a unique combination of sophisticated technology, including AR, VR, MR, XR, AI, and data analytics, is emphasized as the core of immersive commerce allowing consumers to better visualize and engage with the visual experience and develop more confidence in their choice. These technological values are consistent with the principles of experiential marketing and omnichannel strategies, as they support the idea of immersive commerce as one of the dynamic differentiators of

customer engagement and value creation. Strategically, immersive commerce helps to achieve customer satisfaction, purchase uncertainty, enhanced brand presence as well as innovation-driven competitiveness, which are of growing importance in the dynamic and competitive retail environment of India.

Simultaneously, the chapter is critical to recognize the complex problems that limit the implementation of immersive commerce in India. Financial constraints, technological, infrastructural, digital illiteracy, cybersecurity, and change resistance are identified as a major obstacle especially among small and medium-sized retailers. The unequal nature of distribution of digital infrastructure in regions and the variety of retail formats complicate the efforts of implementation. Such dilemmas support the significance of contextual and organizational preparedness in dictating the achievement of immersive commerce approaches.

Using various theoretical viewpoints the chapter provides a multi-dimensional and holistic theory to comprehend the implementation of immersive commerce. The various theories play a different role in explaining the acceptance to technology, diffusion of innovation, consumer reaction, strategic use of resources, and environmental factors. The combination of the two gives a substantial explanatory framework of the interaction of opportunities and challenges to influence the results of immersive commerce in Indian retail.

To sum up, this chapter provides a very robust conceptual and theoretical foundation to the empirical research that follows. It explains the major constructs, relations and situational aspects to the adoption and implementation of immersive commerce. The chapter contributes to the depth, consistency, and rigor of the analysis of the study by placing the concept of immersive commerce into the context of the Indian retail transformation and basing the argument on the previously proven theories. The theoretical framework created in the present study can be considered a prism through which the positive and negative factors of influence on the successful implementation of the immersive commerce strategies in the contemporary Indian retailing can be viewed.

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CHAPTER 4

RESEARCH METHODOLOGY

- *Introduction*
- *Research Design*
- *Research Onion*
- *Source of Data*
- *Population of the Study*
- *Sampling Design*
- *Tools Used for Analysis*
- *Tools Used for Data Collection*
- *Variables Used for the Study*
- *Pilot Study*
- *Data Cleaning*
- *Test of Normality*
- *Reliability Test*
- *Validity Measurement*
- *Period of Data Collection*
- *Conclusion*
- *References*

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4.1 Introduction

Research methodology refers to the structural and systematic framework that supervise the research process. It is an outline of overall approach employed to the research problem, that identifies the relevant variables, specifies the criteria and procedures for selecting participants, and the methods to be used for data collection. It outlines the methods of analysis to be used in making conclusions of the data.

The research methodology is structured with reliability and objectivity in the research by considering all the factors. Research methodology is not a strictly procedural one, and it entails epistemological and ontological assumption by the method of recognizing and expressing reality through research (Creswell and Creswell, 2018). It is a positivist paradigm, based on the assumption and knowledge that can be objectively studied, quantified, and validated through conducting a systematic empirical research (Saunders, Lewis, and Thornhill, 2019).

The current chapter deals with the methodologies adopted by the researcher in the discussion of Positive Impact Factors and Negative Impact Factors that affect the successful Implementation of Immersive Commerce such as Opportunities, Customer loyalty, Business performance, Future potentials, Challenges, Risks and Barriers of immersive commerce in the Indian retailing market. The researcher adopts a deductive approach, wherein theoretical objective, constructs and hypotheses derived from existing literature on immersive commerce that are tested using quantitatively collected field data. The cross-sectional survey form allowed for obtaining the perceptions and the aspect of behavior at a specific moment and the analysis of the current tendencies will be easy without the time distortion (Bryman, 2016).

The causal relationship among latent variables was explored by the quantitative approach and application of the structured questionnaires and Structural Equation Modelling based on Postitive and Negative Impact Factors that affect the successful implementation of Immersive Commerce. Also, the methodological validity is ensured through reliability testing, confirmatory analysis, and reduction of bias, as the results are deemed credible and applicable to the Indian retail context, in general,

which is large (Hair et al., 2019). In short, that chapter gives an account of the conceptual/analytical framework to which the research is linked, where methodological are designed based on research objectives and theoretical orientation.

4.2 Research Design

The current research design is descriptive and explanatory, which has been adopted in order to investigate the interrelationships between the different constructs relevant to the adoption of immersive commerce in Indian retail industry in a systematic manner. Research design gives a logical framework and a procedural design in which the research is being undertaken so that the data collection, measurement, and analysis process of the research are guided (Creswell and Creswell, 2018).

The research concentration on the opportunities (enhancing the experience and product positioning) and challenges (financial, technological, readiness of consumers, etc.) contribute to the performance of the business and the overall chance to successfully implement the immersive commerce is affected by all the Customer loyalty variables. The use of explanatory research design is especially suitable in situations when it is necessary to confirm theoretical assumptions and prove the conceptual models with the help of empirical analysis (Bryman, 2016).

On the whole, the research design is developed in such a manner that can guarantee its clarity, analytical rigor, and close correspondence to relevant theories. Combining the descriptive and explanatory methods in a quantitative framework, it allows undertaking a systematic and valid analysis of the circumstances of immersive commerce adoption and its results concerning contemporary Indian retailing.

4.3 Research Onion

Research Onion model was developed by Saunders, Lewis, and Thornhill (2019), who offers the framework of methodological decisions systematically selected and justified. The Research Onion indicates the interrelationship of the research philosophy research approach, research strategy, time horizon, and data collection

methods by which all methodological decisions are consistent and in line with the objectives of the study.

Figure 4.1

Research Onion Model

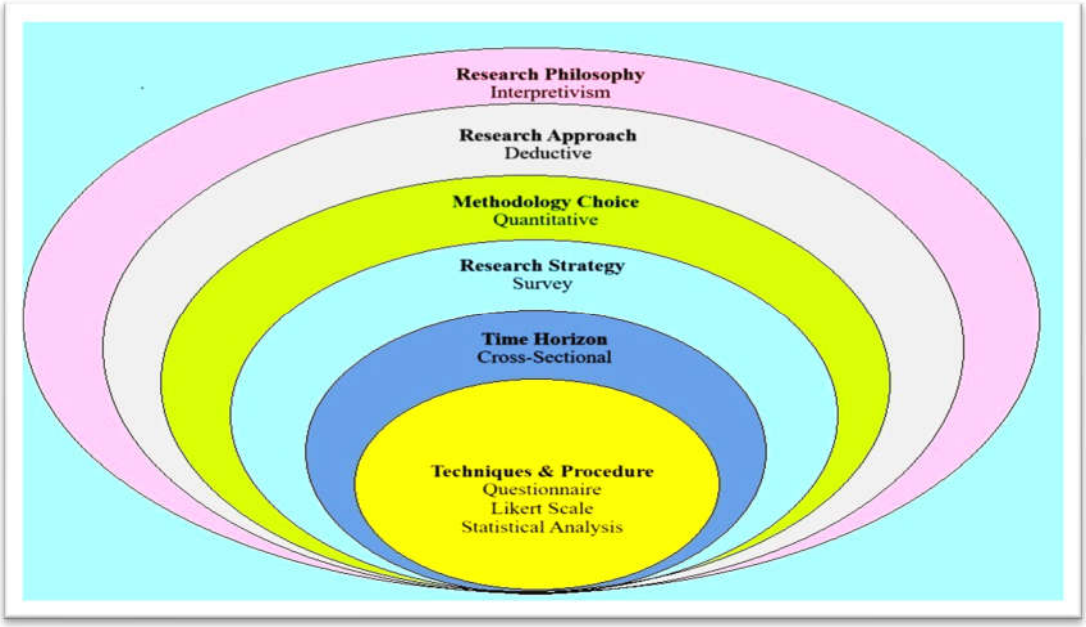


Table No.4.1

Layers of research onion

The detailed explanation and layers of research Onion are explained below;

Sl. No.	Name of the Layer	Explanation	Layer Applicable to Current Study
1	Research Philosophy	Research philosophy indicates beliefs and assumptions regarding how knowledge about a phenomenon is developed and interpreted (Saunders, Lewis, & Thornhill, 2019). Interpretivism focuses on understanding human experiences and socially constructed meanings.	Interpretivism – The study interprets retailer perceptions regarding immersive commerce implementation.

2	Research Approach	Research approach explain about the relationships between the theory and hypotheses. Deductive reasoning tests hypotheses derived from existing theories through empirical observation (Creswell & Creswell, 2018).	Deductive – Hypotheses were formulated from existing theoretical models such as Experiential Marketing, TAM, UTAUT, and S-O-R, and then tested using collected data.
3	Methodological Choice	Methodological choice refers to the selection of quantitative, qualitative, or mixed methods based on study objectives (Bryman & Bell, 2015). A quantitative approach examines the statistical relationships among variables.	Quantitative – Mathematical and Numerical responses collected through structured questionnaires which measure the relationships between constructs.
4	Research Strategy	A research strategy refers to the plan of action for data collection. Survey strategy is commonly used for large samples requiring standardized data (Saunders et al., 2019).	Survey Strategy – A structured questionnaire was distributed to retailers to collect primary responses.
5	Time Horizon	Time horizon shows that the data is collected across one time period (cross-sectional) or multiple periods (longitudinal) (Creswell & Creswell, 2018).	Cross-Sectional – Data were collected once, between January 2025 and April 2025.
6	Techniques & Procedures	Techniques and procedures refer to statistical tools used to collect, measure, and analyze data (Saunders et al., 2019). Statistical analysis helps in testing hypotheses and determining variable relationships.	Questionnaire, Likert Scale, Statistical Analysis (Descriptive, Correlation, Regression, ANOVA, SEM).

4.4 Source of Data

The researcher employed both the primary and secondary data in the study.

4.4.1 Primary Data

The current study is predominantly founded on primary data. The respondents involved in e-retail business received a questionnaire, which served as the primary source of data collection to the respondents who have experience with or are considering using immersive commerce technologies in their business.

4.4.2 Secondary Data

The secondary data were gathered in order to draft review of literature and theoretical framework. The following are the reports used;

1. Academic Journals
2. Research Papers
3. Market Research Databases
4. Company Reports
5. Press Releases
6. Annual reports
7. New technology PR releases.
8. Company blogs
9. Conference Proceedings & Webinars.
10. Retail tech summits.
11. Social media platforms
12. Trade Magazines and News Articles.
13. Industry Reports
14. Government and Institutional Report

4.5 Population of the Study

The population is made up of retailers in different Indian IT and retail hubs, that are both Tier-1 and Tier-2 cities, where the Immersive Commerce adoption is movisible and strategically oriented. The research is targeted at Retail owners and Retail managers of the retail formats of brick and mortar stores, e-commerce and m-commerce stores, and Omni-channel retailing arrangements. The respondents are contacted in several retail segments namely, apparel and fashion, electronics and gadgets, grocery and FMCG, furniture and home decor, beauty and personal care, and other new emerging retail segments.. Such diversity is needed to find out the Opportunities and Challenges of applying immersive commerce in various retail environments. The study population is constituted by retailers of Tier-1 cities like Bengaluru, Mumbai, Delhi NCR, Hyderabad, Pune and Chennai that of Tier-2 cities like Ahmedabad, Indore, Jaipur, Kochi/Trivandrum, Coimbatore and Bhubaneswar.

4.6 Sampling Design

The study employs Proportionate Stratified Sampling Design in order to make sure the respondents selected are a fair representation of the various attributes of the retail industry in India. When the population is heterogeneous and homogeneous subgroups have to be represented proportionately, a stratified sampling method is appropriate (Creswell and Creswell, 2018). In this research, the population was categorised into Tier-1 and Tier-2 retail centres, in terms of the degrees of technological impact and digital infrastructure. According to industry reports, the penetration of immersive commerce in Tier-1 cities is stronger, estimated to be 65 percent of the organized retail, with Tier-2 cities, stating the rest 35 percent, respectively, and hence the sampling distribution was matched to this market structure (NASSCOM, 2023). Each stratum was further divided into category of retail (Apparel and Fashion, Electronics, Grocery and FMCG, Furniture and Home Decor, Beauty and Health Care, and Others).

4.6.1 Determination of Sample Size.

The smallest sample size was decided based on Cochran (1977) equation that gave the value of large/ unknown populations at confidence level of 95 and 5% margin of error assuming highest level of variability (p = 0.50) in order to arrive at a conservative estimate the sample size will be determined using the following formula

$$n_0 = \frac{z^2 p(1-p)}{e^2}$$

$$= \frac{(1.96)^2 \text{ x } 0.5(0.5)}{0.5^2}$$

$$= \frac{3.8416 \text{ x } 0.25}{0.0025}$$

$$= \frac{0.9604}{0.0025}$$

$$= 384.16$$

Whereas z = Standard normal curve;

p = Estimated population and;

e = Margin of error.

4.6.2 Selection of Sample

A detailed description of selection of sample is shown as below.

Table 4.2

Proportion of Samples from Populations

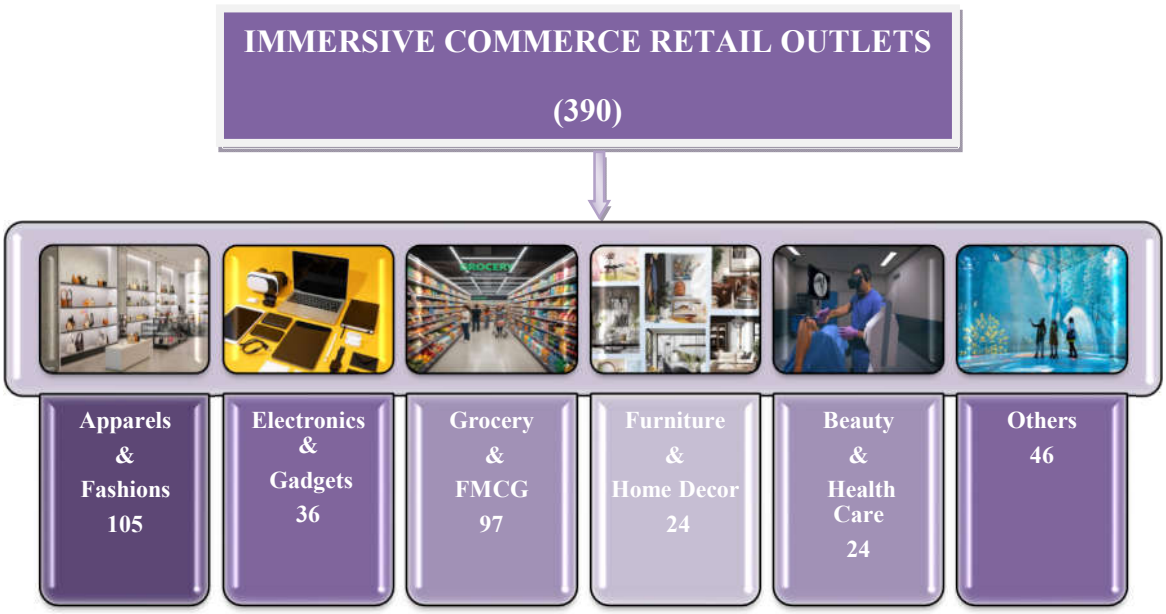
SL No.	City	City Type	Questionnaire Distributed via Google form	Questionnaire Received	Questionnaires Finalized After the removal of Non-sampling Error	Total	Grand Total
1	Bengaluru	Tier 1	390 (65%)	260	Apparels & Fashions	68	253 (65%)
2	Mumbai				Electronics & Gadgets	23	
3	Delhi NCR				Grocery & FMCG	63	
4	Hyderabad				Furniture & Home Décor	53	
5	Pune				Beauty & Health Care	16	
6	Chennai				Others	30	
7	Ahmedabad	Tier 2	210 (35%)	138	Apparels & Fashions	37	137 (35%)
8	Indore				Electronics & Gadgets	13	
9	Jaipur				Grocery & FMCG	34	
10	Kochi/Trivandrum				Furniture & Home Décor	29	
11	Coimbatore				Beauty & Health Care	8	
12	Bhubaneswar				Others	16	
	Total		**600**	**402**			**390**

The table represents the proportionate sampling and completion of the sample that was chosen with regard to the selected Tier-1 and Tier-2 retail hubs in India. Overall, 600 questionnaires were received by filling out a Google Form, with 390

(65%) sent to Tier-1 cities, Bengaluru, Mumbai, Delhi NCR, Hyderabad, Pune, and Chennai, and 210 (35%) sent to Tier-2 cities, Ahmedabad, Indore, Jaipur, Kochi/Trivandrum, Coimbatore. Among the 600 questionnaires that were given, 402 were returned and 390 valid responses were incorporated in the statistical analysis after eliminating duplication through non sampling errors. Out of the responses received, 253 (65%) out of the total responded to were Tier-1 cities and 137 (35%) out of the total responded to were Tier-2 cities, which is the desired sampling ratio. The respondents were also split among the primary retail sectors of the Apparel and Fashion, Electronics and gadgets, Grocery and FMCG, Furniture and home decor, Beauty and health care and Other retail, which increases the diversity and contribute to the generalisability of the study results to diverse retail settings (Researcher's Primary Data, 2024).

Figure No. 4.2

The Composition of Samples Across Major Retail Categories



4.7 Tools Used for Analysis

The tools used to analyse the statistical data were taken under the aid of statistical packages such as IBM SPSS 26.0,and AMOS 23.0, The following are the tools used.

4.7.1 Percentage Analysis

The percentage analysis was used to describe and sum up the responses in terms of the demographic and retail characteristics. When the percentages are made, it is easy to interpret and compare the different respondent groups made of raw data. In this study, percentage analysis has been utilized to justify the sample composition based on gender, age, education qualification, experience, designation, retail format and place that it further statistical analysis (Creswell and Creswell, 2018).

4.7.2 Mean Score Analysis

The mean score was analyzed in explaining the average score of congruency on Likert scale about the constructs of immersive commerce. The central tendency of the respondent perceptions is presented using mean values as a result of which the researcher may conclude whether the respondents agreed and disagreed with each other mostly, or they were in a neutral position regarding various dimensions. This enabled the significant interpretation of the perceptions of the retailers as related to opportunities, customer loyalty, business performance, challenges, and risks (Hair et al., 2019).

4.7.3 Standard Deviation (SD)

Standard Deviation was used to find out the degree of variation of the responses around the mean. A small SD value implies that the answers are similar and a large SD value implies that there is a divergence of opinions between the respondents. This statistical measure provided a clue on the consistency and reliability of the perceptions of retailers of the adoption of immersive commerce (Field, 2018).

4.7.4 Ranking Method

The ranking of items in constructs based on their mean score was done in order to prioritize items. This helped to determine the strongest elements of immersive commerce that the retailers think are the strongest and what challenges appear to be of greater importance. Ranking supported the concept of strategic interpretation

because it highlighted the importance of each factor in the decision-making process of retailers (Zikmund et al., 2019).

4.7.5 Correlation Analysis

Correlation analysis was used to compare the relationships between the key study variables in order to establish the direction and the strength of the relationship between the variables. It helped to determine whether or not one variable is related to gains or losses of another variable. The tool served as a test to get acquainted with their interdependence between opportunities, customer loyalty, business performance, and future potentials before using regression and SEM (Pallant, 2020).

4.7.7 Multiple Regression Analysis.

The Multiple Regression Analysis was utilized to establish the degree into which the independent variables might have influenced a dependent variable. It allowed the researcher to assess the predictive ability of perceived value, customer engagement, and system reliability on customer loyalty and the aspects of business performance on the effective implementation of immersive commerce (Hair et al., 2019).

4.7.7 Multivariate Analysis

The multivariate test statistics of SIIC on multiple business performance constructs were analyzed concurrently with Multivariate Analysis of Variance (MANOVA) in relation to Pillais Trace, Wilks Lambda, Hotellings Trace and Roy Largest Root. The major multivariate results were followed by applying Univariate ANOVA to determine which specific dependent variables Sales Growth, Customer Retention and Trend Adaptation were significantly affected by SIIC. Also, R2 and F-statistics were compared to determine the strength and explanatory power of the effects in each of the constructs.

4.7.8 Independent Sample t-Test

The independent sample t-test was used to compare the mean responses of two independent groups such as male and female respondents or two other groups of people such as a male and a female. It was a test that was utilized to determine

whether differences in the perceptions of immersive commerce adoption and challenges were found to be statistically different between binary demographic groups (Field, 2018).

4.7.9 One-Way ANOVA

In case of the response of more than two groups such as age groups, experience groups, location groups and so on. One-Way ANOVA was employed. It was practical in determining the difference in perceptions among retailer segments and in which large results were achieved, post-hoc tests were used to determine specific group differences (Pallant, 2020

4.7.10 Post Hoc Analysis

After obtaining significant values in the One-Way ANOVA, post Hoc test was used in order to know which groups of people were different. In the same period that ANOVA reveals the existence of a significant overall difference in group means, it does not point to the point of difference. Thus, Tukey HSD (Honestly Significant Difference) Post Hoc test was used in this study because this is suitable when the sample sizes of groups are relatively similar and assuming the homogeneity of variances. (Field, 2018; Pallant, 2020).

4.7.11 Factor Analysis

Factor Analysis was used to check the construct-structure by determining the underlying dimensions in the questionnaire. Exploratory Factor Analysis (EFA) was employed to cluster similar items into logical reason and Confirmatory Factor Analysis (CFA) was employed to test the convergent and discriminative validity. This was to ensure that the measurement model used in SEM was both reliable and valid in terms of statistics (Hair et al., 2019).

4.7.12 Structural Equation Modeling (SEM)

Structural Equation Modeling (SEM) involving AMOS was used in the study to examine the causality of the relationship between latent constructs. The combination of the factor analysis and path analysis that allows to test multidimensional and

multivariate complex models is offered by SEM. It confirmed the direct and indirect connection between opportunities, customer loyalty, business performance, and future potentials of successfully implementing immersive commerce (Byrne, 2016).

4.8 Tools Used for Data Collection

In this study the main instrument of data collection was a structured questionnaire that is phrased in such a way that it would yield a structured response on the topic on immersive commerce implementations in retail organizations. Structured questionnaires have an extensive application in social science studies especially, in a quantitative study, because they allow consistency in data collection, minimize bias of the interviewer, and make the statistical analysis of the results comparative (Creswell and Creswell, 2018). The questionnaire had two sections viz., Part A includes Demographic Characteristics of respondents and Part B includes the major part of the study. Among which 9 statements were concerned with Demographic related questions which are measured at categorical scale and 80 statements represent the main part of the study which is measured using a five-point Likert scale, Strongly Disagree (1) and Strongly Agree (5) respectively. This scale of measurement was appropriate to perceptions, attitudes, and intention to behavior in the case of immersive commerce technologies.

Part A of the questionnaire under the demographic and organizational section included information of gender, age, educational levels, years of experience and position/designation and characteristics of retail, which included retail format, annual turnover, location and type of retail. Part B of the study evaluated the latent constructs of the study, such as enhancement of the experience, positioning the product, perceived value, engagement, reliability, and business performance outcomes, innovation potential, financial constraints, and technological constraints, consumer readiness, and risks. Everything was modified according to the validated scale of measurement depending on the strong conceptual reference to guarantee conceptual correspondence and content validity (Malhotra and Dash, 2016).

The instrument was tested to make sure that it was clear and appropriate and refinements were made accordingly. The structured questionnaire was thus an effective and valid instrument of gathering primary data in this study.

4.9 Variables Used for the study

The main purpose of the study is to analyse the various factors affecting the successful implementation of immersive commerce in Indian retail sector. The researcher used the following variables for the study based on the objective formulated.

Table 4.3

Variables used for the Study

Purpose	Name of the Variable	Description
Opportunities	Experiential Enhancement	Immersive technologies (AR/VR) enhance sensory, emotional, and interactive elements of the shopping experience, increasing enjoyment and involvement.Kim, J., & Forsythe, S. (2008)
	Product Positioning	Ability of immersive tools to visually present products more attractively, helping customers understand features, style, and usage.Fiore, A. M., et al. (2005)
Challenges	Financial Constraints	Monetary limitations related to high investment and maintenance costs required for immersive technologies.Pantano, E., & Gandini, A. (2017)
	Tech-related Constraints	Challenges associated with hardware, software, bandwidth, and technical skill required for AR/VR implementation.Javornik, A. (2016)
	Infrastructure Blockage	Lack of sufficient network, digital infrastructure, and device accessibility hindering immersive commerce.Verhoef, P. C., et al. (2021
	Consumer Readiness	The willingness, awareness, skill, and confidence of customers to adopt immersive shopping technologies.
Customer Loyalty	Perceived Value	Evaluation of the benefits of immersive shopping relative to time, effort, and cost.
	Consumer	Level of emotional, cognitive, and behavioral

	Engagement	involvement customers experience during immersive shopping interactions.Hollebeek, L. D. (2011)
	Reliability	Consistency, stability, and security of immersive systems in performing without errors.DeLone, W. H., & McLean, E. R. (2003)
Business Performance	Sales Growth	Increase in revenue as a result of improved product experience and consumer engagement through immersive retailing.Pantano, E. (2014).
	Customer Retention	Ability to maintain ongoing customer relationships by providing satisfying immersive shopping experiences.Lemon, K. N., & Verhoef, P. C. (2016)
	Trend Adaptation	Retailers' capability to adopt and respond effectively to technological and consumer trends such as AR/VR.Rogers, E. (2003)
Future Potentials	Innovation Capability	Ability of a retailer to introduce and apply new immersive solutions to remain competitive.Teece, D. J. (2007).
	Growth Potential	Future scope for expansion, competitive advantage, and business development enabled by immersive commerce.Bharadwaj, A. (2000)
Risks and Barriers	Financial Risk	Probability of financial loss due to uncertain outcome of investing in immersive technologies.Kotler, P., & Keller, K. L. (2016)
	Operational Risk	Possible disruptions in workflow, staff adaptation, and process execution during immersive technology implementation.Davis, F. D. (1989)
	Security and Privacy Risk	Concerns related to protection of consumer personal data and digital identity in immersive environments.Belanger, F., & Crossler, R. (2011)
	Inclusivity	Ensuring immersive systems are accessible and usable for people of diverse abilities, ages, and backgrounds.Kelly, L., & Matthews, A. (2014)
	Consumer Barrier	Psychological, economic, awareness and usability challenges that limit customer adoption of immersive technologies.Sheth, J. (2021)
Demographic Characteristics	Gender	Gender of the respondent (Male/Female/Others)
	Age	Age of the respondent (18-40/41-60/60 Above)
	Educational Qualifications	Educational Qualifications (SSLC/Diploma/Degree/Masters/Professional

		Degree/Ph.D)
	Year of Experience	Year of Experience (1-3 /4-7/8-10/10 Above)
	Position/Designation	Position of the respondents(Owner/Manager/Franchise Partner/Others)
Retail Characteristics	Retail Format	Type of retail (Brick and Mortar/E-Commerce or M.Commerce/Omni-channel)
	Annual Turnover	Annual income from retail (50 Lakhs -1 crore/1 crore-5 crore/5 crore- 10 crore/Above 10 crore)
	Location	Location of the Retail Outlet (Bengaluru/Mumbai/Delhi NCR/Hyderabad/Pune/ Chennai/Ahamedabad/Indore/Jaipur/ Kochi/Trivandrum/Coimbatore/Bubaneswar)
	Category of Retail	Retail Category of Business (Apparels and Fashions/ Electronics and Gadgets/ Grocery and FMCG /Furniture and Home Décor/ Beauty and Health care/ Others)

4.10 Pilot Study

A pilot study is the preliminary and the most comprehensive study before conducting actual research. For this purpose a pilot study was conducted with model questionnaire including all the eight constructs of opportunities and challenges of Immersive commerce was prepared and administered to 30 (Thirty) E-retailers of Kochi/Trivandrum and Coimbatore, who are engaged the field of Immersive Commerce and on a random basis. The collected data along with the questionnaire was submitted before the experts. As per the opinion of experts the redundant questions in the questionnaire were removed After the pilot study appropriate modifications were incorporated in to the questionnaire for final data collection.

4.11 Data Cleaning

After completion of data collection data cleaning procedure were carried out to identify missing responses, duplications, inconsistencies and response biases. (Sauders et al, 2019). A total of 402 responses were collected, out of which 390 valid and usable responses were retained. The minimum sample size needed at a

total of 384 (Cochran Formula,) but 5% of the responses was increased by considering non sampling errors.

4.12 Test of Normality

Normality assumptions are applied to ensure that the dataset follows a pattern close to a normal distribution. Testing for normality is a crucial step in social science research, particularly when applying parametric test such as correlation analysis, regression, factor analysis, and Structural Equation Modeling (Hair et al., 2019). In this study, the characteristics of the collected data were assessed using Skewness and Kurtosis values.

The skewness values for all items were found to be within the acceptable threshold of -2 to +2, and the kurtosis values were within the range of -7 to +7. (Hair, J. et al., 2010) and (Byrne, B. M., 2010). This range indicates no severe deviation from normality. Hence, the data can be considered as normally distributed and suitable for parametric statistical analyses. The following table shows Skewness and Kurtosis value.

Table 4.4

Skewness and Kurtosis Values

Item	Skewness	SE	Kurtosis	SE
EE1	0.41	0.12	-1.842	0.25
EE2	0.41	0.12	-1.842	0.25
EE3	0.082	0.12	-2.004	0.25
EE4	0.388	0.12	-1.859	0.25
PP1	0.773	0.12	-1.194	0.25
PP2	0.711	0.12	-1.296	0.25
PP3	0.14	0.12	-1.689	0.25
PP4	0.635	0.12	-1.042	0.25
FC1	0.399	0.12	-1.85	0.25
FC2	0.443	0.12	-1.813	0.25
FC3	0.231	0.12	-0.865	0.25
FC4	0.35	0.12	-1.562	0.25
TC1	0.413	0.12	-0.672	0.25
TC2	0.435	0.12	-0.655	0.25

Item	Skewness	SE	Kurtosis	SE
SG3	-1.573	0.12	1.214	0.25
SG4	-0.767	0.12	-0.951	0.25
CRet1	0.288	0.12	-0.652	0.25
CRet2	0.278	0.12	-0.634	0.25
CRet3	0.345	0.12	-0.678	0.25
CRet4	0.301	0.12	-0.644	0.25
TA1	0.392	0.12	-0.77	0.25
TA2	0.359	0.12	-0.683	0.25
TA3	0.332	0.12	-0.745	0.25
TA4	0.452	0.12	-0.767	0.25
IC1	0.421	0.12	-1.832	0.25
IC2	0.037	0.12	-0.842	0.25
IC3	0.007	0.12	-1.716	0.25
IC4	0.399	0.12	-1.85	0.25

TC3	0.474	0.12	-0.646	0.25
TC4	0.35	0.12	-0.69	0.25
IB1	0.319	0.12	-0.738	0.25
IB2	0.247	0.12	-0.619	0.25
IB3	0.286	0.12	-0.687	0.25
IB4	0.328	0.12	-0.724	0.25
CR1	0.094	0.12	-1.844	0.25
CR2	-0.323	0.12	0.206	0.25
CR3	-0.347	0.12	-0.228	0.25
CR4	-0.028	0.12	-0.624	0.25
PV1	0.556	0.12	-1.7	0.25
PV2	0.702	0.12	-1.114	0.25
PV3	0.393	0.12	-1.523	0.25
PV4	0.549	0.12	-1.346	0.25
CE1	0.48	0.12	-0.697	0.25
CE2	0.346	0.12	-0.692	0.25
CE3	0.389	0.12	-0.801	0.25
CE4	0.353	0.12	-0.663	0.25
RL1	0.44	0.12	-0.659	0.25
RL2	0.458	0.12	-0.651	0.25
RL3	0.483	0.12	-0.644	0.25
RL4	0.359	0.12	-0.689	0.25
SG1	-0.372	0.12	-0.763	0.25
SG2	-0.684	0.12	-1.208	0.25

GP1	0.556	0.12	-1.7	0.25
GP2	0.702	0.12	-1.114	0.25
GP3	0.393	0.12	-1.523	0.25
GP4	0.549	0.12	-1.346	0.25
FR1	-0.028	0.12	-0.624	0.25
FR2	0.361	0.12	-1.553	0.25
FR3	0.105	0.12	-1.841	0.25
FR4	0.432	0.12	-1.823	0.25
OPR1	0.421	0.12	-1.832	0.25
OPR2	0.421	0.12	-1.883	0.25
OPR3	0.356	0.12	-1.589	0.25
OPR4	-0.098	0.12	-0.677	0.25
SR1	0.378	0.12	-0.643	0.25
SR2	0.301	0.12	-0.718	0.25
SR3	0.442	0.12	-0.708	0.25
SR4	0.461	0.12	-1.832	0.25
IN1	0.421	0.12	-1.867	0.25
IN2	0.377	0.12	-1.853	0.25
IN3	0.033	0.12	-1.85	0.25
IN4	0.399	0.12	-0.682	0.25
CB1	0.325	0.12	-0.659	0.25
CB2	0.354	0.12	-0.714	0.25
CB3	0.342	0.12	-0.662	0.25
CB4	0.424	0.12	-0.662	0.25

4.13. Reliability Test

The Reliability test was conducted to measure the internal consistency, stability, and dependability of a scaled statement, based on the variables determined in the study. Cronbach's alpha tests is used to evaluate the reliability of the measurement instrument .This coefficient falls within the range of zero to one. To meet the reliability criterion, a Cronbach's alpha value of 0.7 or above is needed. As shown in , the α ranges from 0.786 to 0.946, which is higher than the recommended threshold of α = 0.70. (Nunnally & Bernstein, 1994) Thus, all the 19 constructs in the current research satisfy the Cronbach alpha, and the reliability in this study shows fair stability and consistency.

Confirmatory Factor Analysis was conducted using AMOS to validate the measurement structure. CFA adopted for the assessment of convergent and discriminant validity**.** Convergent validity was evaluated using Average Variance Extracted (AVE) and Composite Reliability (CR)**.** The AVE values for all constructs were found to exceed the acceptable threshold of 0.50**,** indicating that more than half of the variance in each construct is explained by its observed indicators (Fornell & Larcker, 1981). At the same time, CR values were greater than 0.70**,** ensuring adequate construct reliability beyond internal consistency (Hair et al., 2019).

Table 4.5

Reliability Statistics

Sl.No	Construct	No.of Items	Cronbach Alpha
1	Experiential Enhancement	4	0.946
2	Product Positioning	4	0.896
3	Financial Constraints	4	0.845
4	Tech-related Constraints	4	0.864
5	Infrastructure Blockage	4	0.897
6	Consumer Readiness	4	0.871
7	Perceived Value	4	0.874
8	Consumer Engagement	4	0.867
9	Reliability	4	0.866
10	Sales Growth	4	0.786
11	Customer Retention	4	0.889
12	Trend Adaptation	4	0.896
13	Innovation Capability	4	0.912
14	Growth Potential	4	0.874
15	Financial Risk	4	0.932
16	Operational Risk	4	0.918
17	Security and Privacy Risk	4	0.877
18	Inclusivity	4	0.941
19	Consumer Barrier	4	0.874

4.14 Validity Measurement

Discriminant validity was assessed using the Fornell–Larcker Criterion, which requires that the square root of AVE for each construct must be greater than its correlation with other constructs. This condition was satisfied across all construct pairs, demonstrating that each variable was distinct and measured a unique conceptual domain (Fornell & Larcker, 1981). In addition, factor loadings for individual items were reviewed and found to be above the acceptable level of 0.60**,** indicating that there is a strong relationship between observed variables and their underlying constructs.

Collectively, the reliability and validity assessment shows that the measurement scale used in this study is so accurate, consistent and valid. The items were statistically sound and theoretically aligned, and, thereby confirming that the data provide strong foundation for conducting hypotheses testing and Structural Equation modeling.s

4.15 Period of Data Collection

The period of data collection extended from January 2024 to June 2024. During the period, questionnaires were distributed through digital survey distribution and the responses were retrieved from retail organizations across the various categories of retail all over India. The researcher ensure the sufficient time for participants engagement and responses validation. (Creswell & ,Creswell 2018)

4.16 Conclusion

The methodology framework in exploring opportunities, challenges, customer loyaty, business performance, future potential, risk and barriers has been justified and defended by this chapter. This means the potentials and risk of implementation of the immersive commerce into the future of the Modern Indian retail sector. The deductive type of research and the positivist philosophical orientation offered the systematic framework of hypothesis testing through the quantitative data (Creswell and Creswell, 2018). The systematic nature of the responses of the retail organizations was collected in a systematic manner, as the use of the cross-sectional

survey technique was implemented and the Proportionate Stratified Sampling technique was used to get a restricted group of the surveyed retail formats and business sizes (Saunders, Lewis, and Thornhill, 2019). The good sample of 390 valid answers received was sufficient to be analysed using multivariate statistics.

The structured questionnaire provided the opportunity to introduce the complex conceptual constructs into the operational variables and, thus, the adaptivnesss in the adoption of immersive commerce was fully measured. The study also improve data integrity by scrubbing a data by pilot testing of data to refine data, test of normality and test of randomness used to ensure that the respondents were independent. The psychometric adequacy of the measurement model was evaluated by the help of Cronbach Alpha, Composite Reliability, Average Variance Extracted, factor loading and measuring the discriminant validity measures (Hair et al., 2019). In addition, the evaluation of the Common Method Bias due to the Single-Factor Test of Harman proved that the outcomes were not caused due to the methodological artifacts (Podsakoff, MacKenzie, and Podsakoff, 2012).

The results of the SPSS descriptive and inferential statistics combined with AMOS Confirmatory Factor Analysis and Structural Equation Modelling strengthened the rigor of the analysis and allowed using the complex structure relationships between constructs to be analyzed. The strategies embraced on the research on this chapter make the results in it believable, sound, and theoretically developed.

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CHAPTER 5

ANALYSIS OF POSITIVE IMPACT FACTORS INFLUENCING THE SUCCESSFUL IMPLEMENTATION OF IMMERSIVE COMMERCE

- *Introduction*
- *Objectives*
- *Hypotheses*
- *Methodology and Database*
- *Variables Used for Analysis*
- *Demographic Profile of Retailers*
- *Impact of Opportunities on Immersive*
- *Retailer's Perception towards Customer Loyalty*
- *Assessment of Business Performance by Retailer*
- *Forecasting the Future Potentials of Immersive Commerce*
- *Relationship of Positive Impact Factors on Successful Implementation of Immersive Commerce*
- *Conclusion*

Anoop, P. Opportunities and challenges of implementing immersive commerce strategy in modern Indian retailing. Thesis.2026. Farook College (Autonomous), University of Calicut.

5.1 Introduction

This chapter accomplish in the study of the factors that have positive impact on the Successful Implementation of Immersive Commerce in Indian retail sector. Immersive Commerce technologies gain popularity due to their capacity to enrich the experience of the customers. The retailers need to be made familiar to know the major opportunities, customer loyalty results, business performance implications and expectation concerning future potentials.

In line with this the chapter provides the objectives and hypotheses, methodology and database employed and the variables that were taken into account during the analysis. The chapter also analyses the connection between the positive impact factors and the Successful Implementation of Immersive Commerce that provides evidence based information to inform strategic decision making in the retailing industry.

5.2 Objectives

In order to analyze the positive impact factors affecting Successful Implementation of Commerce, following four key objectives are considered;

1. To examine the retailers' perceived opportunities that facilitates the Successful Implementation of Immersive Commerce in the retail sector.
2. To assess retailers' perception towards Customer Loyalty in Immersive Commerce.
3. To analyze the impact of Immersive Commerce on retail business performance.
4. To identify the future potentials of Immersive Commerce in reshaping their innovation and growth

The aim of this chapter is to analyze retailers' perceptions and experiences regarding the Implementation of Immersive Commerce in the Indian retail sector, focusing on the opportunities it offers, its influence on customer loyalty and business performance, the anticipated future potential of such technologies, and how these

positive factors collectively contribute to the Successful adoption of Immersive Commerce practices.

5.3 Hypotheses

The hypotheses formulated to examine whether the factors supported to the overall adoption and execution of Immersive Commerce. The following hypotheses are formulated:

H1: There is an association between Experiential Enhancement and Product Positioning.

H2: Experiential Enhancement and Product Positioning has significant positive relationship with Successful Implementation of Immersive Commerce.

H3: Customer loyalty in Immersive Commerce is significantly influenced by perceived value, customer engagement, and reliability as perceived by retailers.

H4: There is significant multivariate effect of Successful Implementation of Immersive Commerce (SIIC) on the business performance outcomes (Sales Growth, Customer Retention, and Trend Adaptation).

H5: There is a significant relationship in retail characteristics across Growth Potentials and Innovation Capability

H6: There is causal relationship between Successful Implementation of Immersive Commerce with Opportunities, Customer Loyalty, Business Performance and Future Potentials of Immersive Commerce.

5.4 Methodology and Database

This section deals with the analysis of Positive Impact factors and establishes a causal relationship between Positive Impact Factors and Successful Implementations of Immersive Commerce. The researcher adopted descriptive and quantitative research design to collect the data through structured questionnaires. All the constructs measured using a five-point Likert Scale. Responses were collected from various retail format, from multiple locations (Tier 1 and Tier 2) and from multiple retail categories. To understand the influence of Positive Impact factor, various

purpose of the study such as Opportunities, Customer Loyalty, Business Performance and Future Potential was analysed by extracting different variables and the data was processed using Statistical software packages like, SPSS and AMOS.

In preliminary stage, Descriptive Statistics were adopted to understand retailers' perception level. To ensure internal consistency of the construct, reliability test is used by Cron-bach Alpha and validity is measured through Confirmatory Factor Analysis to assess the construct validity, both Convergent and Discriminant. And on final stage, Structural Equation Modeling (SEM) is applied to test the causal effect of positive impact factor. Secondary data is also supported to ensure the conceptual and theoretical groundness.

5.5 Variables Used for Analysis

The researcher conducted the study on the positive impact factors such as Opportunities, Customer Loyalty, Business Performance and Future Potentials. For this purpose, the variables are classified into Dependent Variablees and Independent variables. The factor that is affected or changed due to another variable is called Dependent variable. Here, Dependent variable is considered as Successful Implementation of Immersive Commerce.

Independent variables are shown as below;

Figure 5.1

Independent Variables used for Studying Positive Impact Factors



Compiled by the researcher

The Categorical Variables include retail characteristics of the respondents like Retail format, Annual Turnover, Locations and Category of Retail are used in the study.

Table 5.1

Categorical Variables used for Studying Positive Impact Factors

Categorical Variable	Category	Response Option
Retail Format	Nominal	Brick and Mortar E-Commerce or M.Commerce Omni-channel
Annual Turnover	Ordinal	50 Lakhs -1 crore 1 crore-5 crore 5 crore- 10 crore Above 10 crore)
Location	Nominal	Bengaluru Mumbai Delhi NCR Hyderabad Pune Chennai Ahamedabad Indore Jaipur Kochi/Trivandrum Coimbatore Bhubaneswar
Category of Retail	Nominal	Apparels and Fashions Electronics and Gadgets Grocery and FMCG Furniture and Home Décor Beauty and Health care Others

Compiled by the researcher

5.6 Demographic Profile of Retailers

The demographic profile of the respondent is explained as below

Table 5.2

Frequency distribution of the retailers

Sl No.	Demographic Variables	Frequency	Percentage
1	**Gender**		
	Male	252	69.7
	Female	138	30.3
	Others	0	0
	Total	390	100
2	**Age**		
	18-40	261	66.9
	41-60	120	30.8
	60 Above	9	2.3
	Total	390	100
3	**Educational Qualification**		
	School or Below	5	1.3
	Diploma	4	1
	Degree	35	9
	Masters Degree	113	30.3
	Professional Degree	221	56.7
	Ph.D	11	2.8
	Total	390	100
4	**Position/Designation**		
	Owner	175	44.9
	Manager	109	27.9
	Franchise Partner	74	19
	Others	32	8.2
	Total	390	100
5	**Retail type/Format**		
	Brick and Mortar	18	4.6
	E-Commerce/M-Commerce	144	36.9
	Omni-Channel	228	58.5
	Total	390	100

6	**Experience**		
	Less than 1 year	11	2.8
	1-3 years	50	12.8
	4-7 years	162	41.5
	8-10 years	151	38.7
	Above 10 years	16	4.2
	Total	390	100
7	**Annual Turnover**		
	Less than 50 lakhs	21	5.1
	50 Lakhs - 1 crore	79	20.5
	1 crore- 5 crore	131	33.3
	5 crore - 10 crore	89	23.1
	Above 10 crore	70	17.9
	Total	390	100
8	**Location**		
	Bengaluru	52	13.3
	Mumbai	36	9.2
	Delhi NCR	43	11
	Hyderabad	31	7.9
	Pune	22	5.6
	Chennai	27	6.9
	Ahamedabad	27	6.9
	Indore	18	4.6
	Jaipur	24	6.2
	Kochi/Trivandrum	54	13.8
	Coimbatore	45	11.5
	Bubaneswar	11	2.8
	Total	390	100
9	**Category of Retail**		
	Apparel and Fashion	105	27
	Electronics and Gadget	36	9
	Grocery and FMCG	97	25
	Furniture and Home Decore	82	21
	Beauty and Health Care	24	6
	Others	46	12
	Total	390	100

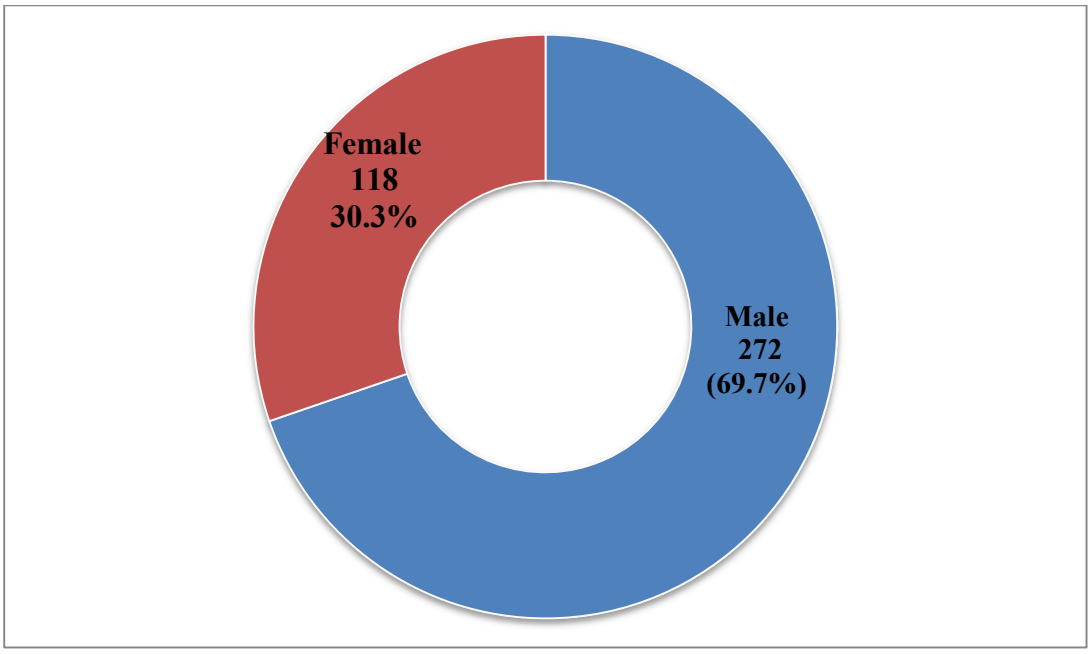
Compiled by the researcher

The above table shows demographic profile of the retailers who involved in the Implementation of the Immersive Commerce in retail in India. These retailers are the most important stakeholders that contribute to adoption or introduction and of such technology as AR/VR to the retail business. The factors to be taken into consideration are gender, age, education level, years of experience, designation of the respondents, retail format they adopted, category of retail, turnover of the retail, location of retail etc., in retailing. All these attributes are possible contributors of the perceptions and strategic actions to Immersive Commerce. To give clear understanding of respondent profiles that are pertinent to the study, the extensive explanation of the sample characteristic is presented consisting of following suitable graphs.

5.6.1 Gender-wise Classification of Respondents

Figure 5.3

Classification on the basis of Gender



Source : Primary Data

The sample comprised predominantly male respondents (69.7%), while females constituted 30.3%, and there were no respondents identifying as others. This gender distribution reflects the ongoing dominance of male leadership in Indian retail decision-making roles. While female participation is present, it is comparatively limited, potentially influencing perspectives on technology adoption and Immersive Commerce Implementation. The gender disparity may impact strategic priorities, risk perception, and innovation adoption rates, highlighting the importance of understanding how gender roles influence Immersive retail decisions in India's evolving digital retail environment.

5.6.2 Age-wise Classifications of the respondents

Figure 5.4

Classification on the basis of Age



Source : Primary Data

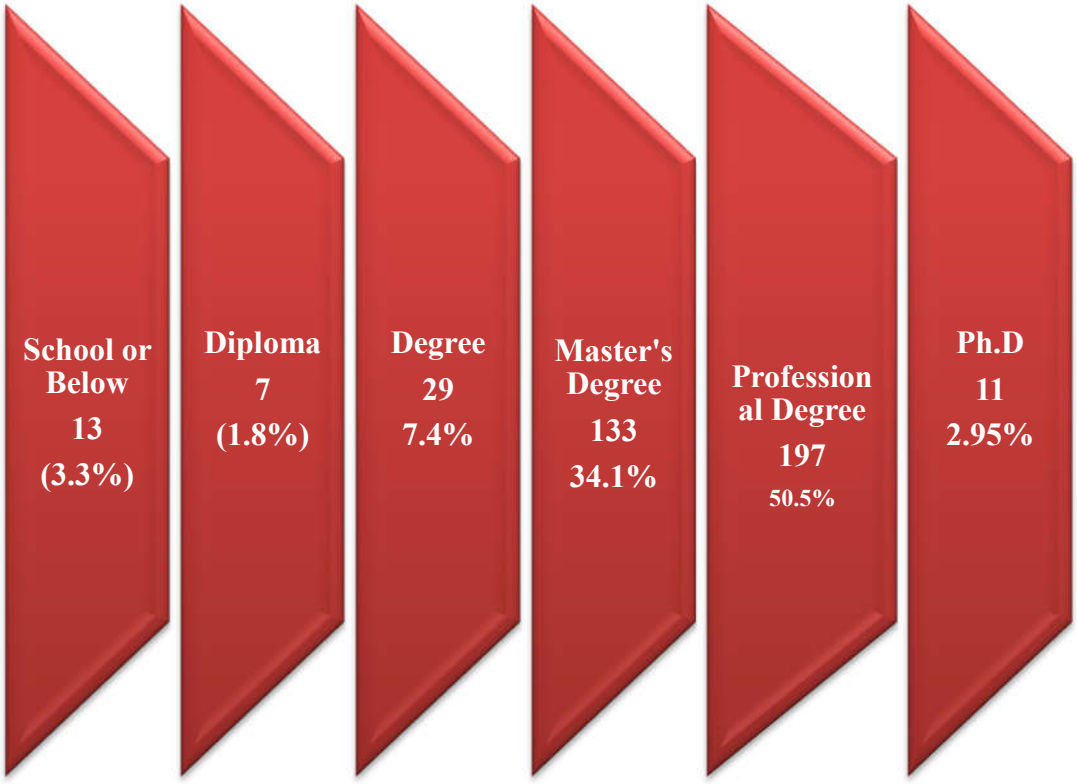
Most of the respondents belong to the age category of 18-40 years (66.9%), then 41-60 years (30.8%) and lastly unreached 60 years group (2.3%). This means that the Immersive Commerce strategies can be best developed by the young and middle-aged retailer specialists. These younger generations tend to be more tech-savvy and flexible to such new retail technologies as AR/VR. The low participation of age groups above 60 implies there might be certain generational discrepancies with their technological usage and willingness to embrace change, which can influence the Immersive Commerce adaptation speed in the deployment of retail environments of varying types.

5.6.3 Educational Qualifications of the Respondents

More than 84 percent of retailers have higher educational qualification, 50.5 percent have professional degrees and 34.1 percentage master degrees. This profile of education shows that it is a highly qualified sample, which means that most respondents will probably understand the emergent technologies such as the Immersive Commerce better. Very few proportions had lower education levels (3.3 percent school and below). The availability of 2.9 percent holding Ph.D. also brings the academic substance in the sample. Such an educated generation can be even more open to digital transformation and it can take well-informed decisions about retail innovation

Figure 5.4

Classification on the basis of Educational Qualifications



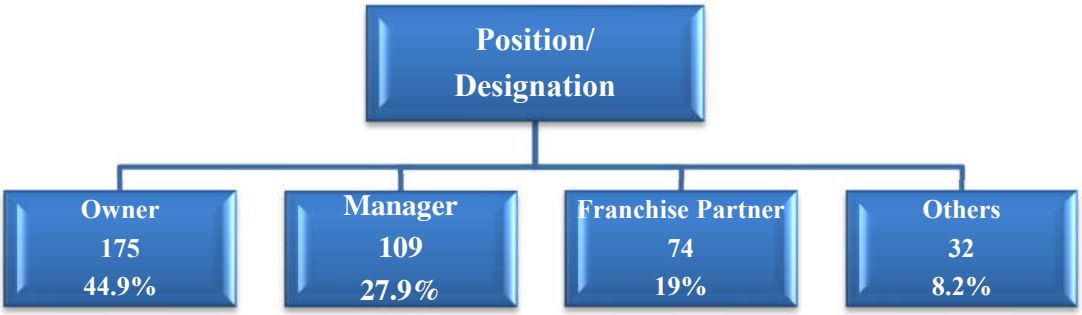
Source : Primary Data

5.6.4 Position/Designation of Retailer

The retail positions represented by the respondents were also wide ranged with business owners 44.9%, managers 27.9% and franchise partners 19% with the others (consultants, supervisors or administrative personnel) standing at 8.2%. The given work points out the fact that most of the decision-makers are directly related to the process of running the business or have a considerable influence on the choice of actions being taken in the sphere of Immersive Commerce. Presence of the group known as the others introduces variety and reflects on those belonging to the operation and support functions and thereby, the same can affect immersion Commerce Implementation in an indirect manner. The diverse roles secure the realization of the study both in terms of strategic perspective and hands-on perspective of the contemporary Indian retail environment.

Figure 5.5

Classification on the basis of Position/Designation



Source : Primary Data

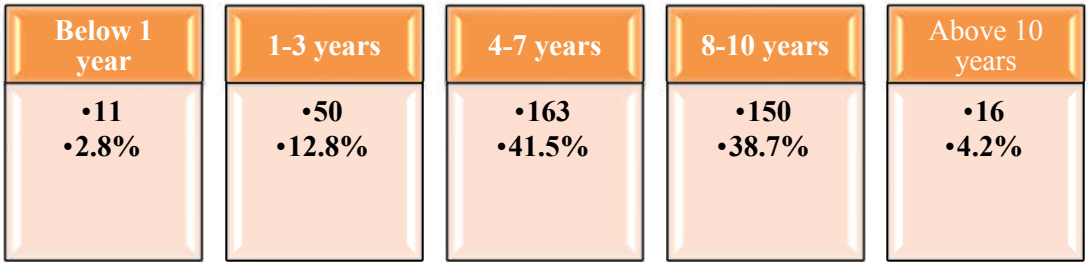
5.6.5 Year of Experience of the respondents

The respondents were mostly experienced professionals, whereby 41.5 percent had 4-7 years of experience in the retail and 38.7 percent had 8-10 years. Again, the number of doctors with less than 3 years of experience (15.6%) or more than 10 years (4.2%) is also small. This should give the idea that professionals in the middle of the career path win in the Immersive Commerce decision space, and probably with experience and also flexibility to the new technology. Being in the business, they have a chance to consider old-fashioned retail strategies and new online tactics

in balance. Little or huge experience would mean that they are unexposed or change resisters, respectively, and this will affect the rate of adoption.

Figure 5.6

Classification on the basis of Year of Experience



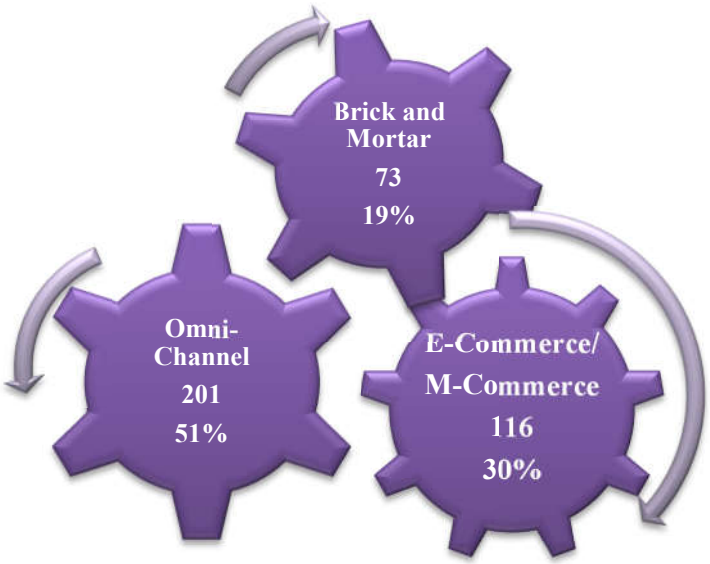
Source : Primary Data

5.6.6 Retail Format of the Business

The largest segment was Omni-channel retailers (51%), then there were e-Commerce/m-Commerce retailers (30%) and brick-and-mortar stores (19%). This strongly indicates the change toward one in which retailing becomes intertwined between physical and provide experiences.

Figure 5.7

Classification of Retail based on Retail format



Source : Primary Data

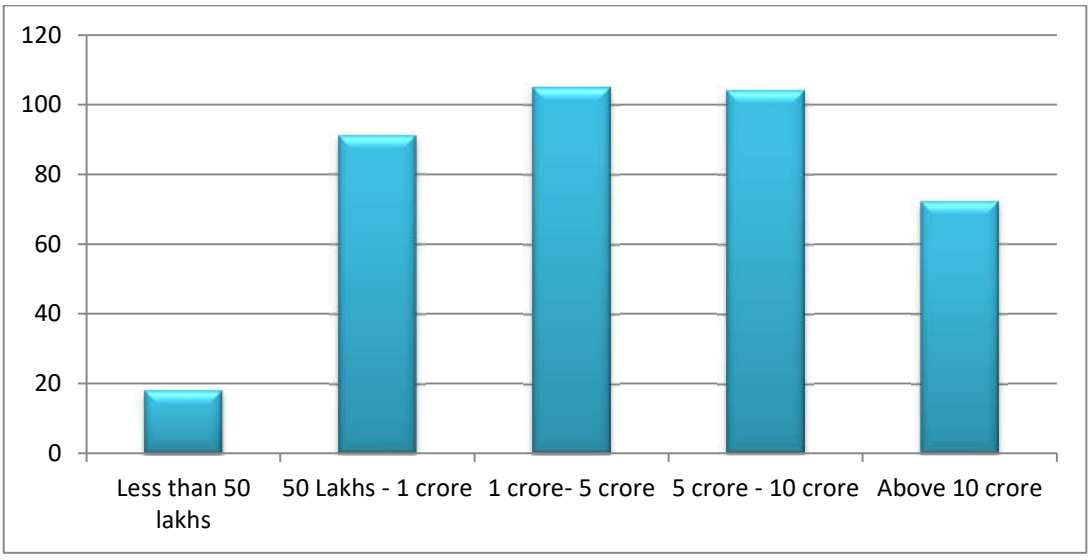
The preference of Omni-channel formats reveals the increasing interest in intermediary technologies between online and offline retail which is exactly the niche Immersive Commerce will fit into. The respondents of e-Commerce themselves are digitally native and could be already trying AR/VR interfaces. There are fewer traditional retailers who might provide the answers to barriers and challenges to Immersive Commerce adoption representing the legacy system point-of-view.

5.6.7 Annual Turnover of the Business

Businesses turnover varied in all segments and most of them were between 1-10 crores (56 per cent). Particularly, 29 percent said 1-5 crore, 27 percent consisted of 5-10 crore, and 22 percent said 50 lakhs to 1-crore. The 18 percent of high-turnover businesses (more than Indian rupees 10 crore) and 4 percent of low-turnover (fewer than 50 lakhs) were found. This speaks of the participation of predominately medium-sized retailers who will probably be enthusiastically scaling and innovating. Their financial scope allows them to invest in the sphere of Immersive Commerce tools, but high-scale and low-scale respondents may vary in strategic direction and toleration of risks.

Figure 5.8

Classification of retail on the basis of Annual Turnover



Source : Primary Data

5.6.8 Location of the Retail

The sample respondents across cities indicate a strong concentration in Tier 1 and Tier 2 Retail/IT Hubs, reflecting the prominence of major urban markets in the study. Kochi/Trivandrum (54), Bengaluru (52), Coimbatore (45), Delhi NCR (43) and Mumbai (36) record the highest representation, highlighting their significance as leading hubs for technology adoption, modern retail formats, and innovative commerce practices. Hyderabad (31), Chennai (27) and Ahmadabad (27) also contribute with relatively moderate respondents, suggesting steady but comparatively balanced participation. Whereas, in cities such as Jaipur (24) and Pune (22) show a notable engagement, indicating growing awareness and adoption potential beyond metros. Smaller Tier 2 cities like Indore (18), Bhubaneswar (17), and have lower representation, reflecting comparatively limited exposure or scale of immersive commerce initiatives. Overall, the distribution suggests that while immersive commerce is predominantly driven by Tier 1 cities, Tier 2 cities are emerging as important markets, pointing toward a gradual diffusion of immersive retail practices across urban India.

Figure 5.9

Classification of retail on the basis of Location



Source : Primary Data

5.6.9 Category of Retail

The following figures show that the highest adoption rate of immersive commerce is in the Apparel and Fashion category (105 retailers) where immersive technologies and virtual solutions, including virtual try-ons, product visualization in a three-dimensional mode, and AR room set-up, are highly applicable. Similarly in the Grocery and FMCG and Furniture and Home Décor, (97 and 82 retailers respectively) there is a strong applicability of immersive technologies. The less-adopted online shopping categories are Electronics and Gadgets (36) and Beauty and Health Care (24), which might be because of the greater technological complexity or the reluctance of the customers in these areas to change. The Others category implies that even the businesses not considered the mainstream areas such as books, toys, or sports goods would be tested into the world of immersive commerce. Remarkably, the share of Tier I cities is dominating in all the categories and demonstrates the better infrastructure, digital maturity, and a more customer-engagement level, and Tier II cities signals the novice interest with increasing potential in immersive retail experiences.

Figure 5.10

Classification of retail on the basis of Category of Retail



Source : Primary Data

5.7 Impact of Opportunities on Immersive Commerce

The opportunities such as Experiential Enhancement and Product Positioning positively influence the Successful Implementation of Immersive Commerce in Indian Retail Sector.

5.7.1 Descriptive Statistics of Opportunities

Following table shows the descriptive statistics of opportunities

Table 5.3

Descriptive Statistics of Opportunities

Construct	Item Code	Indicators	N	Mean	SD	Rank
Experiential Enhancement	EE1	Use of Immersive technology enhances the in-store experience for customers.	390	4.40	.491	4
	EE2	Customers feel more engaged due to interactive digital features.	390	4.42	.493	2
	EE3	Immersive Commerce creates a memorable shopping experience.	390	4.48	.500	1
	EE4	Visual immersion increases customer satisfaction.	390	4.41	.492	3
Product Positioning	PP1	Immersive Commerce helps us display products more effectively.	390	4.31	.467	3
	PP2	Our product features are better communicated through AR/VR tools.	390	4.32	.472	2
	PP3	Digital environments allow innovative product presentation	390	4.44	.507	1
	PP4	Customers can explore product options more clearly using Immersive tools.	390	4.30	.475	4

Source : Primary Data

This construct indicate that retailers have examined the opportunities to facilitate the Implementation of Immersive Commerce in the Indian Retailing. The Experiential Enhancement indicators show high mean scores, ranging from 4.40 to 4.48, confirming that Immersive technologies significantly enhance the retail experience. Retailers have clear idea that the Immersive tools enhance customer engagement, create memorable and interactive shopping atmosphere, thereby improving customer satisfaction. The standard deviation values (SD ≈ 0.41 to 0.50) are relatively low,

indicates that low variability in responses and a consistent perception among respondents.

In the case of Product Positioning construct, the mean values is ranging from 4.30 to 4.44 indicates that Immersive Commerce enables more effective product display, clearer communication of product features, and innovative visual presentation. The ability of customers to explore products in digital or augmented environments is viewed as a notable advantage. The standard deviations (SD ≈ 0.46 to 0.51) again show low dispersion, indicating high respondent agreement.

Across both constructs, with the low standard errors confirms that there is a stability and reliability in mean estimates. Overall, the findings clearly indicate that retailers view Immersive Commerce as a valuable strategic opportunity for enhancing experiential value and strengthening product presentation within modern retail environments.

5.7.2 Correlation Analysis between Experiential Enhancement and Product Positioning

Correlation is simply refers to the association or the relationship between two or more correlation. The researcher analyse different constructs of Opportunities of Immersive Commerce by using Pearson Coefficient of Correlation.

Experiential Enhancement and Product Positioning are conceptually interrelated constructs in the Immersive retail environment. The retailers who paid for enhancing the customer experience through Immersive technologies more wish to adopt positioning strategies. Similarily, effective product positioning can strengthen the experiential impact of product. This reciprocal reinforcement indicates that improvements in one construct accompany improvements in the other. Therefore, it is hypothesized that Experiential Enhancement and Product Positioning are positively and significantly associated with each other.

H1: There is an association between Experiential Enhancement and Product Positioning

Table 5.4

Correlation Coefficient between Experiential Enhancement and Product Positioning

Variables	Correlation (r)	Significance (p-value)	Result
Experiential Enhancement ↔ Product Positioning	0.418**	0.000	Supported
Correlation is significant at the 0.01 level (2-tailed).			

Source : Primary Data

The results show that there is a moderate positive relationship between Experiential Enhancement and Product Positioning. Experiential Enhancement plays a significant role in the Successful Implementation of Immersive Commerce that the retailer should made some improvements in customer interaction, sensory engagement, and Immersive experiences which can meaningfully drive Implementation success. At the same time Product Positioning refers to the strategic process of creating a distinct image and identity for a product in the minds of consumers, emphasizing its unique attributes and benefits to differentiate it from competing products in the market (Kotler & Keller, 2016).The positive correlation (r = 0.418) between Experiential Enhancement and Product Positioning shows that it is a strategy of the retailers to enhance the Immersive experience in the product or service they offered and thereby establish and maintain a brand or product's unique identity in the minds of consumers.

5.7.3 Regression Analysis

Regression analysis conducted to examine the influence of retailers' perceived opportunities on the Successful Implementation of Immersive Commerce in the Indian retail sector.

H1: Experiential Enhancement and Product positioning has significant positive relationship with successful Implementation of Immersive Commerce

Table 5.5

Regression analysis between Experiential Enhancement, Product Positioning and Successful Implementation of Immersive Commerce

Variable	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	2.856	.093		30.725	.000
Experiential Enhancement	.139	.019	.347	7.415	.000
Product Positioning	.134	.020	.306	6.554	.000
Dependent Variable : Successful Implementation of Immersive Commerce					

Source : Primary Data

The regression analysis indicates that both experiential enhancement and product positioning significantly influence the successful implementation of immersive commerce. Experiential enhancement shows a strong effect with an unstandardized coefficient of B = 0.139, a standardized beta of β = 0.347, and a t-value of 7.415, which is statistically significant at $p < .001$, indicating that increases in experiential enhancement improves the implementation success. Product positioning also demonstrates a positive and significant impact (B = 0.134, β = 0.306, t = 6.554, $p < .001$), suggesting that effective product visualization and presentation through immersive technologies meaningfully support successful implementation. The constant value (B = 2.856, t = 30.725, $p < .001$) reflects a moderate baseline level of implementation readiness. Overall, the results confirm that both opportunity-based factors contribute significantly, with experiential enhancement exerting a comparatively stronger influence on the successful implementation of immersive commerce.

5.8 Retailer' Perception towards Customer Loyalty

The Customer is the king of sovereignty and businesses depend heavily on the identity and allegiance of their customers. Customer loyalty is crucial to the success of Immersive Commerce adoption. Here, the researcher uses a few variables or characteristics to examine the retailer's perception of customer loyalty in order to assess the successful Implementation of Immersive Commerce.

5.8.1 Descriptive Statistics

The following table shows the descriptive statistics of Customer Loyalty

Table 5.6

Descriptive Statistics of Customer Loyalty

Constructs	Factors	N	Mean	Std. Deviation	Rank
Perceived Value	Immersive experiences add value to customer interaction.	390	3.68	0.630	2
	Customers perceive Immersive Commerce as useful.	390	3.69	0.615	1
	Immersive technology increases the attractiveness of our brand.	390	3.67	0.649	3
	The perceived benefits of Immersive shopping are high.	390	3.66	0.651	4
Customer Engagement	Customers spend more time interacting through Immersive features.	390	3.66	0.649	4
	Gamified or interactive elements increase customer involvement.	390	3.71	0.639	2
	AR/VR content keeps customers engaged throughout the visit	390	3.73	0.672	1
	Customers return to experience the Immersive environment again.	390	3.68	0.622	3
Reliability	Our Immersive systems function consistently during operations.	390	4.04	0.501	4
	The accuracy of product visualization in Immersive tools is high.	390	4.40	0.491	3
	Customers trust the Immersive features for making purchase decisions	390	4.48	0.50	2
	Technical reliability enhances customer confidence.	390	4.41	0.492	1

Source: Primary Data

The perception of most of the retailers is that Immersive Commerce enhances the shopping experience. They consider the Immersive characteristics helpful, in particular, to make brands look good (Mean= 3.67) and to facilitate shopping (Mean= 3.66). The 3.66-3.69 levels indicate that shoppers believe that they do indeed gain access to the Immersive tech, including receiving a clearer view of goods, looking through improved, and making more intelligent decisions. This indicates that Immersive Commerce is not only a recent trend but it is value-adding and results in happier customers and a higher quality shopping experience to them.

The scores are quite good indicating that the Immersive feature contributes to extending the duration and increasing the interest of the shoppers in products sightseeing (Mean = 3.66 to 3.73). Interactive and game-like features are the most effective and Immersive content keeps the shopper interested during the experience. However, the scores are less than the perceived value scores indicating that the shoppers enjoy the experience, but retailers may need to introduce more interesting interactive elements that are more personalized to motivate the shopper to come back and remain interested in the experience. Effective storytelling and interactive touch points would also assist in raising the engagement and returning shoppers.

Immersive Commerce is reliable and effective. Customers feel that the Immersive tools exhibit transparent product images (Mean= 4.40) and are reliable in their sales. They also believe that technical reliability creates their trust (Mean= 4.41), demonstrating that the performance without mistakes and without any hassles is highly valued. To the point, the scores on high reliability indicate that retailers operate regular Immersive resources, and the optimism is what promotes further usage and favorable attitudes.

5.8.1 Multiple Regressions & Hypothesis Testing

Multiple Regressions is a tool evaluated for the purpose of finding out the effectiveness or the impact of one variable with other variables. The various factors affecting customer loyalty are perceived value, customer engagement and reliability. Customer Loyalty is considered as Dependent variable and the factors influencing customer loyalty is Independent variables. Here, researcher predict the determinants of Customer loyalty each other by applying Multiple Regressions.

Customer loyalty is affected by frequent purchase behavior and continuous usage of customer. Perceived Value has a significant role to every customer for product acceptance. Cognitive and psychological factors are influencers of Customer loyalty. When Immersive Commerce tools offer interactive engagement, product assurance and superior visualization customers tend to develop a stronger preference for the retailer, increasing loyalty. Thus, higher perceived value is positively influence customer loyalty.

Consumer Engagement is a strong predictor of customer loyalty by which customers interact, participate, and emotionally connect with Immersive features. It build the strong relationship between the customer and the product. The retailer has to involve on customer engagement by giving more add-on values to the product. Higher the Customer Engagement, greater will be the Customer loyalty.

Reliability in the Immersive system has crucial impact on Customer loyalty. If the trust reduces the perceived risk and uncertainty increases, especially in technology-driven environment. When customers has firm believe in the Immersive Commerce platform that the retailer's offer is dependable, secure, and consistent, their willingness to continue using it and stay loyal increases. Thus, reliability is expected to significantly influence customer loyalty.

H1: Customer loyalty in Immersive Commerce is significantly influenced by perceived value, customer engagement, and reliability as perceived by retailers.

Table 5.7

Hypotheses on Customer Loyalty

Hypotheses No.	Hypotheses
H1a:	Perceived Value has significant impact on Customer Loyalty
H1b:	Customer Engagement has positive influence on Customer Loyalty
H1c:	Reliability has positive influence on Customer Loyalty

Table 5.8

Hypothesis Testing Results

Predictors	Unstandardized Coefficient (B)	Std. Error	Standardized Coefficient (Beta)	t-value	Significance (p-value)
Perceived Value	0.333	0.000	0.441	High (p < .001)	0.000
Customer Engagement	0.333	0.000	0.659	High (p < .001)	0.000
Reliability	0.333	0.000	0.62	High (p < .001)	0.000

Source: Primary Data

The regression analysis indicate that all three predictors of customer loyalty viz., Perceived Value, Customer Engagement, and Reliability have significant and positive influence on the dependent variable, Customer Loyalty ($p < .001$). Among them, Customer Engagement has the ($\beta = 0.659$) and Reliability ($\beta = 0.620$) also indicates a strong influence. Perceived Value ($\beta = 0.441$) has a moderate but positive impact.

5.9 Assessment of Business Performance by Retailer

Assessment of business Performance mainly focuses on the non-financial outcomes resulting from the Implementation of Immersive Commerce. Here, the researcher asses the retailers evaluation on Sales Growth, Customer Retention and Trend Adaptation in Immersive Commerce adoption. Since profit-related data is confidential and more sensitive and the retailers rarely reveal the actual profit figures, it is methodologically more appropriate to assess business performance through self-report friendly indicators such as sales growth, customer retention and trend adaptation.

5.9.1 Descriptive Statistics of Business Performance

The following table shows the descriptive Statistics of Business Performance.

Table 5.9

Descriptive Statistics of Business Performance

Constructs	Factors	Mean	SD	Rank
Sales Growth	Sales have improved since implementing Immersive Commerce.	4.28	0.661	4
	Immersive tools help convert interest into purchase.	4.63	0.493	3
	High product visualization drives impulse purchases.	4.77	0.498	1
	AR/VR features help upsell premium products.	4.64	0.494	2
Customer Retention	Immersive features encourage repeat visits.	3.66	0.598	4
	Loyal customers prefer Immersive shopping environments.	3.71	0.617	1
	AR/VR experiences build long-term relationships.	3.70	0.633	2
	Personalization in Immersive Commerce improves retention.	3.69	0.617	3
Trend Adaptation	We stay competitive by adopting Immersive Commerce trends.	3.72	0.664	2
	Immersive technology positions us as an innovative retailer.	3.69	0.635	3
	There is Regular updation of Immersive features with new trends.	3.74	0.656	1
	Competitor adoption pressures us to innovate using Immersive tech.	3.68	0.668	4

Source : Primary Data

In the construct, Sale growth the statement “High product visualization drives impulse purchases” holds the highest mean (4.77), suggesting that Impulsive buying is a being affected by High Visualisation effect of product. Similarly, “AR/VR features help upsell premium products” (Mean = 4.64) and “Immersive tools help convert interest into purchase” (Mean = 4.63) reflect the advantage of Immersive Commerce by its technological features. Although “Sales have improved since implementing Immersive Commerce” has a comparatively lower mean (4.28), it still

indicates positive sales outcomes. This shows that Immersive Commerce focuses both impulse buying and upselling, directly contributing to sales growth.

The customer retention indicators show moderate agreement, with the highest mean score of 3.71 for "Loyal customers prefer Immersive shopping environments." This implies that Immersive experiences can enhance loyalty by offering engaging shopping environments. Additionally, "AR/VR experiences build long-term relationships" (Mean = 3.70) and "Personalization improves retention" (Mean = 3.69) suggest that personalization and sustained engagement through Immersive tools help strengthen customer relationships. However, "Immersive features encourage repeat visits" ranked lowest (Mean = 3.66), indicating that while Immersive Commerce positively influences retention, it may not yet be a primary driver for repeat customer visits compared to other loyalty factors.

For trend adaptation, the highest-rated factor is "Regular updation of Immersive features with new trends" (Mean = 3.74), emphasizing the need for continuous innovation to stay relevant. The statement "We stay competitive by adopting Immersive Commerce trends" (Mean = 3.72) confirms that retailers view Immersive technology as essential for maintaining competitive advantage. Meanwhile, "Immersive technology positions us as an innovative retailer" (Mean = 3.69) shows that Immersive Commerce contributes to brand image and differentiation. The lowest mean (3.68) for "Competitor adoption pressures us to innovate" indicates that although competition exists, retailers are more internally motivated to innovate rather than being pushed by external market forces.

The results show that Immersive Commerce contributes more strongly to Sales Growth than to Customer Retention, while also playing a strategic role in Trend Adaptation. Retailers recognize the value of Immersive experiences in enhancing product appeal and influencing purchase decisions, but there is still room to strengthen its role in driving customer loyalty and repeat engagement.

5.9.2. Multivariate Analysis on Different constructs of Business Performance and its influence on Successful Implementation of Immersive Commerce

The Successful Implementation of the Immersive Commerce is highly influential to various constructs of Business performance. Since, the constructs are multidimensional, Multivariate Analysis (MANOVA) was conducted . This study is based on performance-based constructs that consist of multiple interrelated dependent measures.(Tabachnick & Fidell, 2019; Field, 2018).

Business performance is a crucial outcome that impulses how effectively Immersive Commerce contribute to quantifiable improvements in retail sector. Retailers often experience increases in sales growth, stronger customer retention, and better trend adaptation to market changes through enhanced experiences and positioning strategies. These performance indicators collectively tends the operational and strategic gains resulting from Immersive Commerce Implementation. Therefore, it is aligned that retailers who achieve higher levels of sales improvement, retained customers, and active trend adaptation to emerging retail trends are more likely to perceive Immersive Commerce Implementation as Successful.

H1: There is significant multivariate effect of Successful Implementation of Immersive Commerce (SIIC) on the business performance outcomes (Sales Growth, Customer Retention, and Trend Adaptation).

The individual univariate hypotheses formulated are

Table 5.10

Hypothesis on Business Performance

Sl. No.	Hypotheses
H1a	There is significant relationship between Implementation of Immersive Commerce and Sales Growth
H1b	There is significant relationship between Implementation of Immersive Commerce and Customer Retention
H1c	There is significant relationship between Implementation of Immersive Commerce and Trend Adaptation.

The following table showing the Multivariate tests of different constructs of Business Performance and its effect on Successful Implementation of Immersive Commerce.

Table 5.11

Multivariate Analysis

Multivariate Tests[a]

Effect		Value	F	Hypothesis df	Error df	Sig.
Intercept	Pillai's Trace	0.995	22696.655[b]	3.000	351.000	0.000
	Wilks' Lambda	0.005	22696.655[b]	3.000	351.000	0.000
	Hotelling's Trace	193.989	22696.655[b]	3.000	351.000	0.000
	Roy's Largest Root	193.989	22696.655[b]	3.000	351.000	0.000
SIIC	Pillai's Trace	.838	3.803	108.000	1059.000	.000
	Wilks' Lambda	.306	4.720	108.000	1052.106	.000
	Hotelling's Trace	1.816	5.881	108.000	1049.000	.000
	Roy's Largest Root	1.553	15.226[c]	36.000	353.000	.000

a. Design: Intercept + SIIC
b. Exact statistic
c. The statistic is an upper bound on F that yields a lower bound on the significance level.
Source : Primary Data

Table 5.12

Test of Between-Subject Effects

Source	Constructs	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	Sales Growth	26.794[a]	36	.744	6.464	.000
	Customer Retention	24.015[b]	36	.667	2.706	.000
	Trend Adaptation	34.050[c]	36	.946	3.576	.000
Intercept	Sales Growth	3165.401	1	3165.401	27490.523	0.000

	Customer Retention	2103.248	1	2103.248	8531.062	.000
	Trend Adaptation	2123.731	1	2123.731	8028.534	.000
SIIC	Sales Growth	26.794	36	.744	6.464	.000
	Customer Retention	24.015	36	.667	2.706	.000
	Trend Adaptation	34.050	36	.946	3.576	.000
Error	Sales Growth	40.646	353	.115		
	Customer Retention	87.029	353	.247		
	Trend Adaptation	93.377	353	.265		
Total	Sales Growth	8338.250	390			
	Customer Retention	5429.813	390			
	Trend Adaptation	5494.313	390			
Corrected Total	Sales Growth	67.440	389			
	Customer Retention	111.043	389			
	Trend Adaptation	127.426	389			
a. R Squared = .397 (Adjusted R Squared = .336)						
b. R Squared = .216 (Adjusted R Squared = .136)						
c. R Squared = .267 (Adjusted R Squared = .192)						

Source : Primary Data

The overall MANOVA test evaluate whether the Successful Implementation of Immersive Commerce has a significant combined effect on the three constructs of business performance. The hypothesis is tested through Pillai's Trace, Wilks Lambda, Hotelling's Trace and Roys' Largest Root. The multivariate results were significant across all the indicators viz., Sales Growth, $F(36, 353) = 6.464$, $p < .001$, $R^2 = .397$; Customer Retention, $F(36, 353) = 2.706$, $p < .001$, $R^2 = .216$; and Trend Adaptation, $F(36, 353) = 3.576$, $p < .001$, $R^2 = .267$. This means Successful Implementation of Immersive Commerce has significant role in determining various business performance simultaneously.

After MANOVA, the researcher was examined a univariate ANOVA to see which specific dependent variables are most significantly influenced through test of Between-Subject Effect.

Effect of Successful Implementation of Immersive Commerce on Sales Growth

The study reveals that the Sales Growth is a strong predictor of Successful Implementation of Immersive Commerce at its significant values, $F(36,353) = 6.464$, $p = 0.000$, $R^2 = .397$, Adjusted $R^2 = .336$. The Successful Implementation of Immersive Commerce explain 39.7% of the variance in Sales Growth. This is a Large effect Size (Hair et al., 2019). The retailers who focuss on Successful Implementation of Immersive Commerce will report higher perceived sales growth. Increase in sales strengthen retailers' belief that initiatives of Immersive Commerce will succeed in future. Its a long term strategy of the retailer in improving sales and thereby gain competitive advantage. This suggests that when Immersive tools lead to higher sales growth and revenue generation, retailer adopts Immersive Commerce as a valuable and sustainable strategic investment.

Effect of Customer Retention on Successful Implementation of Immersive Commerce

The study reveals that the Customer Retention is strategy of retailers in Successful Implementation of Immersive Commerce at its significant values, $F (36,353) = 2.706$, $p = 0.000$, $R^2 = .216$, Adjusted $R^2 = .136$. Around 21.6% of the variance in customer retention is explained by Successful Implementation of Immersive Commerce. This is a moderate effect. The retailer should develop the Immersive technologies more attractive for maintaining long-term relationships, repeat purchase intention of customer.

Effect of Trend Adaptation on Successful Implementation of Immersive Commerce

The result indicates that Successful Implementation of Immersive Commerce also influences Trend Adaptation. There is significant relationship with both and the F value represents 3.576, $p =0.000$. $R^2 = .267$, Adjusted $R^2 = .192$, indicating that Trend adaptation is another predictor of Business performance, being small but

moderate effect. About 26.7% of variance in Trend Adaptation is explained by Successful Implementation of Immersive Commerce .The market trends are more likely to lead the success of Immersive Commerce. It acts as a strategy to enhance the technological knowledge and advancement of the firm.

Overall, the results show that greater perceived Implementation of Immersive Commerce is related with higher improvements in business performance, especially in sales growth.

5.10 Forecasting the Future Potentials of Immersive Commerce

The future potentials of immersive commerce is strongly driven by firms' innovation capability and growth.

5.10.1 Descriptive Statistics of Future Potentials

The following table shows the Descriptive Statistics of Future Potentials

Table 5.13

Descriptive Statistics of Future Potentials

Constructs	Factors	Mean	Std. Deviation	Rank
Innovation Capability	The team always experimenting with Immersive Technology	4.4	0.49	2
	Exploration of new Immersive Commerce innovations is active in the outlet.	4.35	0.537	4
	Innovation has important role in our Immersive strategy.	4.47	0.51	3
	Immersive Commerce adopts creative business thinking.	4.41	0.491	1
Growth Potentials	Immersive Commerce boosts long-term retail growth.	4.37	0.483	2
	Immersive Commerce opens up new revenue channels.	4.31	0.472	4
	Immersive Commerce foresee future Market Expansions	4.38	0.481	1
	The growth of Immersive Commerce looks promising.	4.34	0.485	3

Source: Primary Data

5.10.2 Relationship between Retail characteristics with Future Potentials.

The relationship between retail characteristics and the future potentials of Immersive Commerce is very significant as it establishes how factors such as retil format, annual turnover, location and category of retail shape the future potentials of Immersive technology adoption in retail. Retailers with innovative digital infrastructure and high growth potentials have to leverage AR/VR-based Immersive experiences to differentiate their offerings and enhance customer engagement. It helps to identify which types of retailers are getting benefit from Immersive Commerce and what strategic measures that others may need to make competitive. In this context, forecasting the future potentials is essential part of studying the Successful Implementation of the Immersive Commerce.

Hypothesis is

H1: There is a significant relationship in Retailer attributes across Growth Potentials and Innovation Capability

Table 5.14

Hypotheses of Future Potentials

Hypotheses No	**Hypotheses**
H1a:	Retail format has significant influence on Innovation Capability
H1b:	Annual Turnover has significant impact on Innovation Capability
H1c:	Location has positive relationship with Innovation Capability
H1d:	Category of Retail has significant influence on Innovation Capability
H1e:	Retail format has positive influence on Growth Potentials
H1f:	Annual Turnover has significant impact on Growth Potentials
H1g:	Location has positive relationship with Growth Potentials
H1h:	Category of Retail has significant influence on Growth Potentials

Table 5.15

ANOVA – Retail format on Innovation capability

ANOVA					
	Sum of Squares	**df**	**Mean Square**	**F**	**Sig.**
Between Groups	0.007	2	0.003	0.017	0.983
Within Groups	79.137	387	0.204		
Total	79.144	389			

Source : Primary Data

The results states that there is no significant difference among these groups regarding the Retail format and Innovation Capability since the value is p-value is more than 0.05.

Table 5.16

ANOVA – Annual Turnover on Innovation Capability

ANOVA					
	Sum of Squares	**df**	**Mean Square**	**F**	**Sig.**
Between Groups	.617	4	.154	.757	.554
Within Groups	78.527	385	.204		
Total	79.144	389			

Source : Primary Data

The results states that there is no significant difference among these groups regarding the Annual Turnover and Innovation Capability since the value is p-value is more than 0.05.

Table 5.17

ANOVA – Location on Innovation capability

ANOVA					
	Sum of Squares	**df**	**Mean Square**	**F**	**Sig.**
Between Groups	4.003	11	.364	1.830	.047
Within Groups	75.142	378	.199		
Total	79.144	389			

Source : Primary Data

The results states that there is significant difference among these groups regarding the Location and Innovation Capability since the value is p-value is less than 0.05**.**

Table 5.18

Multiple Comparisons between Location and Innovation Capability

Multiple Comparisons						
Location		**Mean Difference (I-J)**	**Std. Error**	**Sig.**	**95% Confidence Interval**	
					Lower Bound	**Upper Bound**
Bengaluru	Mumbai	-.09188	.09667	.999	-.4098	.2260
	Delhi NCR	-.24966	.09190	.222	-.5519	.0526
	Hyderabad	-.00698	.10117	1.000	-.3397	.3257
	Pune	.09309	.11340	1.000	-.2798	.4660
	Chennai	-.10345	.10576	.998	-.4513	.2444
	Ahamedabad	.01692	.10576	1.000	-.3309	.3647
	Indore	.04006	.12193	1.000	-.3609	.4411
	Jaipur	-.20994	.11003	.754	-.5718	.1519
	Kochi/Trivandrum	-.14049	.08663	.900	-.4254	.1444
	Coimbatore	.00951	.09078	1.000	-.2890	.3080
	Bhubaneswar	-.19100	.14797	.980	-.6776	.2956
Mumbai	Bengaluru	.09188	.09667	.999	-.2260	.4098
	Delhi NCR	-.15778	.10072	.920	-.4890	.1735
	Hyderabad	.08490	.10924	1.000	-.2744	.4442
	Pune	.18497	.12066	.931	-.2118	.5818
	Chennai	-.01157	.11351	1.000	-.3849	.3617
	Ahamedabad	.10880	.11351	.998	-.2645	.4821
	Indore	.13194	.12871	.997	-.2913	.5552
	Jaipur	-.11806	.11749	.998	-.5045	.2683
	Kochi/Trivandrum	-.04861	.09593	1.000	-.3641	.2669
	Coimbatore	.10139	.09970	.997	-.2265	.4293
	Bhubaneswar	-.09912	.15360	1.000	-.6043	.4060
Delhi NCR	Bengaluru	.24966	.09190	.222	-.0526	.5519
	Mumbai	.15778	.10072	.920	-.1735	.4890
	Hyderabad	.24269	.10505	.471	-.1028	.5882
	Pune	.34276	.11687	.134	-.0416	.7271
	Chennai	.14621	.10948	.974	-.2138	.5063
	Ahamedabad	.26658	.10948	.385	-.0935	.6266

	Indore	.28973	.12517	.468	-.1219	.7014
	Jaipur	.03973	.11360	1.000	-.3339	.4133
	Kochi/Trivandrum	.10917	.09113	.989	-.1905	.4089
	Coimbatore	.25917	.09508	.218	-.0535	.5719
	Bhubaneswar	.05867	.15065	1.000	-.4368	.5541
Hyderabad	Bengaluru	.00698	.10117	1.000	-.3257	.3397
	Mumbai	-.08490	.10924	1.000	-.4442	.2744
	Delhi NCR	-.24269	.10505	.471	-.5882	.1028
	Pune	.10007	.12429	1.000	-.3087	.5088
	Chennai	-.09648	.11737	1.000	-.4825	.2895
	Ahamedabad	.02389	.11737	1.000	-.3621	.4099
	Indore	.04704	.13212	1.000	-.3875	.4816
	Jaipur	-.20296	.12122	.879	-.6016	.1957
	Kochi/Trivandrum	-.13351	.10047	.975	-.4639	.1969
	Coimbatore	.01649	.10407	1.000	-.3258	.3587
	Bhubaneswar	-.18402	.15647	.990	-.6986	.3306
Pune	Bengaluru	-.09309	.11340	1.000	-.4660	.2798
	Mumbai	-.18497	.12066	.931	-.5818	.2118
	Delhi NCR	-.34276	.11687	.134	-.7271	.0416
	Hyderabad	-.10007	.12429	1.000	-.5088	.3087
	Chennai	-.19655	.12806	.930	-.6177	.2246
	Ahamedabad	-.07618	.12806	1.000	-.4973	.3450
	Indore	-.05303	.14170	1.000	-.5190	.4130
	Jaipur	-.30303	.13160	.477	-.7358	.1298
	Kochi/Trivandrum	-.23359	.11277	.644	-.6045	.1373
	Coimbatore	-.08359	.11599	1.000	-.4650	.2979
	Bhubaneswar	-.28409	.16464	.856	-.8256	.2574
Chennai	Bengaluru	.10345	.10576	.998	-.2444	.4513
	Mumbai	.01157	.11351	1.000	-.3617	.3849
	Delhi NCR	-.14621	.10948	.974	-.5063	.2138
	Hyderabad	.09648	.11737	1.000	-.2895	.4825
	Pune	.19655	.12806	.930	-.2246	.6177
	Ahamedabad	.12037	.12135	.998	-.2787	.5194
	Indore	.14352	.13567	.996	-.3027	.5897
	Jaipur	-.10648	.12508	.999	-.5178	.3049
	Kochi/Trivandrum	-.03704	.10509	1.000	-.3826	.3086
	Coimbatore	.11296	.10854	.997	-.2440	.4699
	Bhubaneswar	-.08754	.15948	1.000	-.6120	.4369
Ahamedabad	Bengaluru	-.01692	.10576	1.000	-.3647	.3309
	Mumbai	-.10880	.11351	.998	-.4821	.2645

	Delhi NCR	-.26658	.10948	.385	-.6266	.0935
	Hyderabad	-.02389	.11737	1.000	-.4099	.3621
	Pune	.07618	.12806	1.000	-.3450	.4973
	Chennai	-.12037	.12135	.998	-.5194	.2787
	Indore	.02315	.13567	1.000	-.4230	.4693
	Jaipur	-.22685	.12508	.810	-.6382	.1845
	Kochi/Trivandrum	-.15741	.10509	.941	-.5030	.1882
	Coimbatore	-.00741	.10854	1.000	-.3644	.3495
	Bhubaneswar	-.20791	.15948	.978	-.7324	.3166
Indore	Bengaluru	-.04006	.12193	1.000	-.4411	.3609
	Mumbai	-.13194	.12871	.997	-.5552	.2913
	Delhi NCR	-.28973	.12517	.468	-.7014	.1219
	Hyderabad	-.04704	.13212	1.000	-.4816	.3875
	Pune	.05303	.14170	1.000	-.4130	.5190
	Chennai	-.14352	.13567	.996	-.5897	.3027
	Ahamedabad	-.02315	.13567	1.000	-.4693	.4230
	Jaipur	-.25000	.13902	.818	-.7072	.2072
	Kochi/Trivandrum	-.18056	.12135	.943	-.5796	.2185
	Coimbatore	-.03056	.12434	1.000	-.4395	.3784
	Bhubaneswar	-.23106	.17063	.971	-.7922	.3301
Jaipur	Bengaluru	.20994	.11003	.754	-.1519	.5718
	Mumbai	.11806	.11749	.998	-.2683	.5045
	Delhi NCR	-.03973	.11360	1.000	-.4133	.3339
	Hyderabad	.20296	.12122	.879	-.1957	.6016
	Pune	.30303	.13160	.477	-.1298	.7358
	Chennai	.10648	.12508	.999	-.3049	.5178
	Ahamedabad	.22685	.12508	.810	-.1845	.6382
	Indore	.25000	.13902	.818	-.2072	.7072
	Kochi/Trivandrum	.06944	.10938	1.000	-.2903	.4292
	Coimbatore	.21944	.11270	.729	-.1512	.5901
	Bhubaneswar	.01894	.16234	1.000	-.5150	.5528
Kochi/Trivandrum	Bengaluru	.14049	.08663	.900	-.1444	.4254
	Mumbai	.04861	.09593	1.000	-.2669	.3641
	Delhi NCR	-.10917	.09113	.989	-.4089	.1905
	Hyderabad	.13351	.10047	.975	-.1969	.4639
	Pune	.23359	.11277	.644	-.1373	.6045
	Chennai	.03704	.10509	1.000	-.3086	.3826
	Ahamedabad	.15741	.10509	.941	-.1882	.5030
	Indore	.18056	.12135	.943	-.2185	.5796
	Jaipur	-.06944	.10938	1.000	-.4292	.2903

	Coimbatore	.15000	.08999	.882	-.1460	.4460
	Bhubaneswar	-.05051	.14749	1.000	-.5356	.4345
Coimbatore	Bengaluru	-.00951	.09078	1.000	-.3080	.2890
	Mumbai	-.10139	.09970	.997	-.4293	.2265
	Delhi NCR	-.25917	.09508	.218	-.5719	.0535
	Hyderabad	-.01649	.10407	1.000	-.3587	.3258
	Pune	.08359	.11599	1.000	-.2979	.4650
	Chennai	-.11296	.10854	.997	-.4699	.2440
	Ahamedabad	.00741	.10854	1.000	-.3495	.3644
	Indore	.03056	.12434	1.000	-.3784	.4395
	Jaipur	-.21944	.11270	.729	-.5901	.1512
	Kochi/Trivandrum	-.15000	.08999	.882	-.4460	.1460
	Bhubaneswar	-.20051	.14996	.974	-.6937	.2927
Bhubaneswar	Bengaluru	.19100	.14797	.980	-.2956	.6776
	Mumbai	.09912	.15360	1.000	-.4060	.6043
	Delhi NCR	-.05867	.15065	1.000	-.5541	.4368
	Hyderabad	.18402	.15647	.990	-.3306	.6986
	Pune	.28409	.16464	.856	-.2574	.8256
	Chennai	.08754	.15948	1.000	-.4369	.6120
	Ahamedabad	.20791	.15948	.978	-.3166	.7324
	Indore	.23106	.17063	.971	-.3301	.7922
	Jaipur	-.01894	.16234	1.000	-.5528	.5150
	Kochi/Trivandrum	.05051	.14749	1.000	-.4345	.5356
	Coimbatore	.20051	.14996	.974	-.2927	.6937

Source : Primary Data

The Post-hoc Tukey HSD results show that some locations such as Delhi NCR, Pune, Jaipur, and Kochi/Trivandrum show mean differences when compared with other cities like Bengaluru or Mumbai. These differences are not large enough to be considered as meaningful. The confidence intervals for multiple comparisons overlap, further revealing that Innovation Capability levels remain relatively consistent across locations. Therefore, Location is not a factor influencing Innovation Capability in the Implementation of Immersive Commerce.

Table 5.19

ANOVA – Category of Retail on Innovation capability

ANOVA					
Source of Variation	**Sum of Squares**	**df**	**Mean Square**	**F**	**Sig.**
Between Groups	0.531	5	0.106	0.519	0.762
Within Groups	78.613	384	0.205		
Total	79.144	389			

Source : Primary Data

The results states that there is no significant difference among these groups regarding the Retail format and Innovation Capability since the value is p-value value is more than 0.05

Table 5.20

ANOVA – Retail format on Growth Potentials

ANOVA					
Source of Variations	**Sum of Squares**	**df**	**Mean Square**	**F**	**Sig.**
Between Groups	0.004	2	0.002	0.01	0.99
Within Groups	81.384	387	0.21		
Total	81.388	389			

Source : Primary Data

The results of the ANOVA states that there is no significant difference among these groups regarding the Retail format and Growth Potentials since the value is p-value is more than 0.05.

Table 5.21

ANOVA – Annual Turnover on Growth Potentials

ANOVA					
Source of Variations	**Sum of Squares**	**df**	**Mean Square**	**F**	**Sig.**
Between Groups	.447	4	.112	.531	.713
Within Groups	80.941	385	.210		
Total	81.388	389			

Source : Primary Data

The results of the ANOVA states that there is no significant difference among these groups regarding the Annual Turnover and Growth Potentials since the value is p-value is more than 0.05.

Table 5.22

ANOVA – Location on Growth Potentials

ANOVA					
Source of Variations	**Sum of Squares**	**df**	**Mean Square**	**F**	**Sig.**
Between Groups	4.740	11	.431	2.125	.018
Within Groups	76.648	378	.203		
Total	81.388	389			

Source : Primary Data

The results of the ANOVA states that there is significant difference among these groups regarding the Location and Growth Potentials since the value is p-value is less than 0.05.

Table 5.23

Multiple Comparisons between Location and Innovation Capability

Multiple Comparisons						
Location		**Mean Difference (I-J)**	**Std. Error**	**Sig.**	**95% Confidence Interval**	
					Lower Bound	**Upper Bound**
Bengaluru	Mumbai	-.10043	.09763	.997	-.4215	.2207
	Delhi NCR	-.24788	.09282	.245	-.5531	.0574
	Hyderabad	-.02001	.10218	1.000	-.3560	.3160
	Pune	.11233	.11453	.998	-.2643	.4890
	Chennai	-.08422	.10682	1.000	-.4355	.2671
	Ahamedabad	.03615	.10682	1.000	-.3151	.3874
	Indore	.07318	.12314	1.000	-.3318	.4782
	Jaipur	-.20112	.11112	.812	-.5666	.1643
	Kochi/Trivandrum	-.16756	.08749	.749	-.4553	.1202
	Coimbatore	.02874	.09168	1.000	-.2728	.3303
	Bhubaneswar	-.21722	.14944	.952	-.7087	.2743
Mumbai	Bengaluru	.10043	.09763	.997	-.2207	.4215
	Delhi NCR	-.14745	.10173	.953	-.4820	.1871

	Hyderabad	.08042	.11033	1.000	-.2824	.4433
	Pune	.21275	.12186	.846	-.1880	.6135
	Chennai	.01620	.11464	1.000	-.3608	.3932
	Ahamedabad	.13657	.11464	.989	-.2404	.5136
	Indore	.17361	.12999	.974	-.2539	.6011
	Jaipur	-.10069	.11867	.999	-.4910	.2896
	Kochi/Trivandrum	-.06713	.09689	1.000	-.3858	.2515
	Coimbatore	.12917	.10069	.981	-.2020	.4603
	Bhubaneswar	-.11679	.15513	1.000	-.6270	.3934
Delhi NCR	Bengaluru	.24788	.09282	.245	-.0574	.5531
	Mumbai	.14745	.10173	.953	-.1871	.4820
	Hyderabad	.22787	.10610	.589	-.1211	.5768
	Pune	.36020	.11804	.098	-.0280	.7484
	Chennai	.16365	.11057	.945	-.2000	.5273
	Ahamedabad	.28402	.11057	.301	-.0796	.6477
	Indore	.32106	.12642	.319	-.0947	.7368
	Jaipur	.04675	.11474	1.000	-.3306	.4241
	Kochi/Trivandrum	.08032	.09204	.999	-.2224	.3830
	Coimbatore	.27661	.09603	.152	-.0392	.5924
	Bhubaneswar	.03066	.15215	1.000	-.4697	.5310
Hyderabad	Bengaluru	.02001	.10218	1.000	-.3160	.3560
	Mumbai	-.08042	.11033	1.000	-.4433	.2824
	Delhi NCR	-.22787	.10610	.589	-.5768	.1211
	Pune	.13233	.12553	.996	-.2805	.5452
	Chennai	-.06422	.11854	1.000	-.4541	.3256
	Ahamedabad	.05615	.11854	1.000	-.3337	.4460
	Indore	.09319	.13344	1.000	-.3457	.5320
	Jaipur	-.18112	.12243	.945	-.5838	.2215
	Kochi/Trivandrum	-.14755	.10147	.952	-.4813	.1862
	Coimbatore	.04875	.10511	1.000	-.2969	.3944
	Bhubaneswar	-.19721	.15803	.985	-.7169	.3225
Pune	Bengaluru	-.11233	.11453	.998	-.4890	.2643
	Mumbai	-.21275	.12186	.846	-.6135	.1880
	Delhi NCR	-.36020	.11804	.098	-.7484	.0280
	Hyderabad	-.13233	.12553	.996	-.5452	.2805
	Chennai	-.19655	.12933	.934	-.6219	.2288
	Ahamedabad	-.07618	.12933	1.000	-.5015	.3492
	Indore	-.03914	.14312	1.000	-.5098	.4315
	Jaipur	-.31345	.13291	.437	-.7506	.1237
	Kochi/Trivandrum	-.27988	.11389	.370	-.6544	.0947
	Coimbatore	-.08359	.11715	1.000	-.4688	.3017
	Bhubaneswar	-.32955	.16629	.706	-.8764	.2173

Chennai	Bengaluru	.08422	.10682	1.000	-.2671	.4355
	Mumbai	-.01620	.11464	1.000	-.3932	.3608
	Delhi NCR	-.16365	.11057	.945	-.5273	.2000
	Hyderabad	.06422	.11854	1.000	-.3256	.4541
	Pune	.19655	.12933	.934	-.2288	.6219
	Ahamedabad	.12037	.12256	.998	-.2827	.5234
	Indore	.15741	.13702	.992	-.2932	.6080
	Jaipur	-.11690	.12633	.999	-.5324	.2986
	Kochi/Trivandrum	-.08333	.10614	1.000	-.4324	.2657
	Coimbatore	.11296	.10962	.997	-.2475	.4735
	Bhubaneswar	-.13300	.16107	1.000	-.6627	.3967
Ahamedabad	Bengaluru	-.03615	.10682	1.000	-.3874	.3151
	Mumbai	-.13657	.11464	.989	-.5136	.2404
	Delhi NCR	-.28402	.11057	.301	-.6477	.0796
	Hyderabad	-.05615	.11854	1.000	-.4460	.3337
	Pune	.07618	.12933	1.000	-.3492	.5015
	Chennai	-.12037	.12256	.998	-.5234	.2827
	Indore	.03704	.13702	1.000	-.4136	.4877
	Jaipur	-.23727	.12633	.772	-.6527	.1782
	Kochi/Trivandrum	-.20370	.10614	.747	-.5528	.1454
	Coimbatore	-.00741	.10962	1.000	-.3679	.3531
	Bhubaneswar	-.25337	.16107	.918	-.7831	.2764
Indore	Bengaluru	-.07318	.12314	1.000	-.4782	.3318
	Mumbai	-.17361	.12999	.974	-.6011	.2539
	Delhi NCR	-.32106	.12642	.319	-.7368	.0947
	Hyderabad	-.09319	.13344	1.000	-.5320	.3457
	Pune	.03914	.14312	1.000	-.4315	.5098
	Chennai	-.15741	.13702	.992	-.6080	.2932
	Ahamedabad	-.03704	.13702	1.000	-.4877	.4136
	Jaipur	-.27431	.14041	.724	-.7361	.1875
	Kochi/Trivandrum	-.24074	.12256	.717	-.6438	.1623
	Coimbatore	-.04444	.12558	1.000	-.4575	.3686
	Bhubaneswar	-.29040	.17233	.874	-.8572	.2764
Jaipur	Bengaluru	.20112	.11112	.812	-.1643	.5666
	Mumbai	.10069	.11867	.999	-.2896	.4910
	Delhi NCR	-.04675	.11474	1.000	-.4241	.3306
	Hyderabad	.18112	.12243	.945	-.2215	.5838
	Pune	.31345	.13291	.437	-.1237	.7506
	Chennai	.11690	.12633	.999	-.2986	.5324
	Ahamedabad	.23727	.12633	.772	-.1782	.6527
	Indore	.27431	.14041	.724	-.1875	.7361
	Kochi/Trivandrum	.03356	.11047	1.000	-.3297	.3969

	Coimbatore	.22986	.11382	.680	-.1445	.6042
	Bhubaneswar	-.01610	.16396	1.000	-.5553	.5231
Kochi/Trivandrum	Bengaluru	.16756	.08749	.749	-.1202	.4553
	Mumbai	.06713	.09689	1.000	-.2515	.3858
	Delhi NCR	-.08032	.09204	.999	-.3830	.2224
	Hyderabad	.14755	.10147	.952	-.1862	.4813
	Pune	.27988	.11389	.370	-.0947	.6544
	Chennai	.08333	.10614	1.000	-.2657	.4324
	Ahamedabad	.20370	.10614	.747	-.1454	.5528
	Indore	.24074	.12256	.717	-.1623	.6438
	Jaipur	-.03356	.11047	1.000	-.3969	.3297
	Coimbatore	.19630	.09089	.580	-.1026	.4952
	Bhubaneswar	-.04966	.14896	1.000	-.5395	.4402
Coimbatore	Bengaluru	-.02874	.09168	1.000	-.3303	.2728
	Mumbai	-.12917	.10069	.981	-.4603	.2020
	Delhi NCR	-.27661	.09603	.152	-.5924	.0392
	Hyderabad	-.04875	.10511	1.000	-.3944	.2969
	Pune	.08359	.11715	1.000	-.3017	.4688
	Chennai	-.11296	.10962	.997	-.4735	.2475
	Ahamedabad	.00741	.10962	1.000	-.3531	.3679
	Indore	.04444	.12558	1.000	-.3686	.4575
	Jaipur	-.22986	.11382	.680	-.6042	.1445
	Kochi/Trivandrum	-.19630	.09089	.580	-.4952	.1026
	Bhubaneswar	-.24596	.15146	.899	-.7441	.2521
Bhubaneswar	Bengaluru	.21722	.14944	.952	-.2743	.7087
	Mumbai	.11679	.15513	1.000	-.3934	.6270
	Delhi NCR	-.03066	.15215	1.000	-.5310	.4697
	Hyderabad	.19721	.15803	.985	-.3225	.7169
	Pune	.32955	.16629	.706	-.2173	.8764
	Chennai	.13300	.16107	1.000	-.3967	.6627
	Ahamedabad	.25337	.16107	.918	-.2764	.7831
	Indore	.29040	.17233	.874	-.2764	.8572
	Jaipur	.01610	.16396	1.000	-.5231	.5553
	Kochi/Trivandrum	.04966	.14896	1.000	-.4402	.5395
	Coimbatore	.24596	.15146	.899	-.2521	.7441

Source : Primary Data

The Post-hoc Tukey HSD tests show that the statistically significant differences are not widely present between any of the retail locations as the Significance values are all more than 0.05. But, there are slightly mean difference in numbers in some cities like Delhi NCR and Pune are slightly higher than other cities, they are not so

statistically significant. Also, all pair wise comparisons have shared confidence intervals, which justifies the fact no individual location has more or less Growth Potentials as compared to other locations. Hence, the levels of Growth Potential of retailers are relatively similar, indicating that the geographical location does not purely affect the perception connection with the further development of the Immersive Commerce Implementation.

Table 5.24

ANOVA – Category of Retail and Growth Potentials

ANOVA					
	Sum of Squares	**df**	**Mean Square**	**F**	**Sig.**
Between Groups	.447	4	.112	.531	.713
Within Groups	80.941	385	.210		
Total	81.388	389			

Source : Primary Data

The results states that there is no significant difference among these groups regarding the Annual Turnover and Growth Potentials since the value is p-value is more than 0.05.

5.11 Relationship of Positive Impact Factors on Successful Implementation of Immersive Commerce

The researcher pointed out the various factors and strategies to influence the Successful Implementation of Immersive Commerce. Implementation of Immersive Technology in retail outlets is a crucial one, which makes the customer better experience in purchasing and choosing of a product. The searching of new customer and retaining of customer is challenging to every retailer. Sales Growth, Trend adaptation and is also important. Innovative ideas and Growth potentials also play prominent role in building confidence of retailers to Immersive Commerce adoption. By considering all these factors, retailers have to take initiative in Immersive Commerce. So this study is relevant to identify whether there is a strong relationship between these Positive Impact Factors and Successful Implementation.

The study focussed on the first four objectives formulated by the researcher. Inorder to predict the relationship Covariance Based Structural Equation Modelling is adopted. So that, Exploratory Factory Analysis and Confirmatory Factor Analysis is conducted based on the statistical tools like SPSS and AMOS.

Exploratory Factor Analysis

Exploratory Factor Analysis (EFA) was conducted to identify the underlying factor structure among the measured variables. Following table. shows Kaiser-Meyer-Olkin and Bartlett's Test.

Table 5.25

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		**0.804**
Bartlett's Test of Sphericity	Approx. Chi-Square	11189.103
	df	780
	Sig.	.000

Source : Primary Data

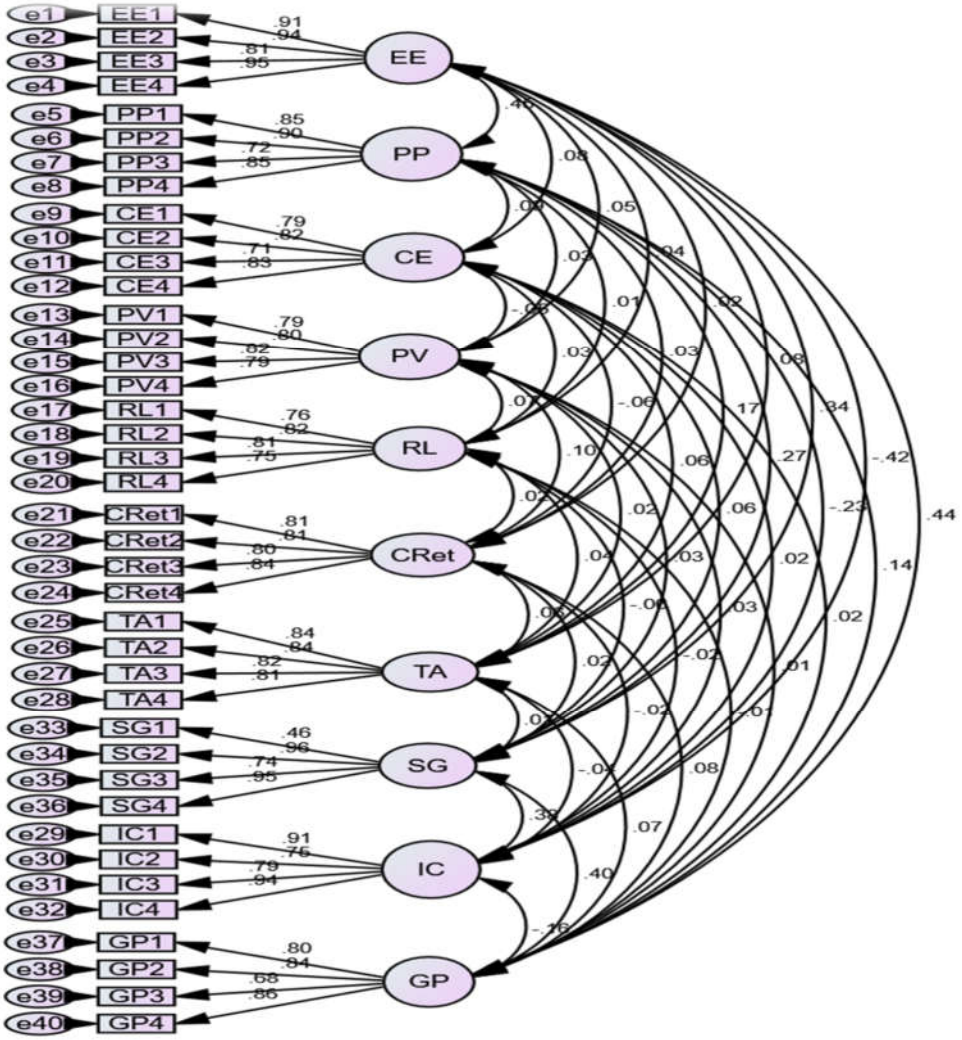
The suitability of the data for factor analysis was confirmed through the Kaiser–Meyer–Olkin (KMO) test, which exceeded the recommended value of 0.60, and Bartlett's Test of Sphericity, which was significant i.e., p-value is less than 0.05 implying correlations among items (Hair et al., 2019). Factors were extracted using Principal Component Analysis with Varimax rotation, and items with factor loadings above 0.5 were retained for interpretation (Field, 2018). The results show that items grouped into clear and meaningful factors, demonstrating good construct representation.

Confirmatory Factor Analysis (CFA)

The following figure shows the Confirmatory Factor Analysis

Figure 5.34

Confirmatory Measurement Model shows the relationship between Positive Impact factors that influence the successful implementation of Immersive Commerce



Compiled by the researcher

Confirmatory Factor Analysis (CFA) was conducted to validate the measurement model and reliability and consistency in underlying latent constructs. To assess the internal sampling adequacy of the model, several fit indices were examined. A good model fit is indicated by Chi-square to degrees of freedom ratio (χ^2/df) is less than 3, the Comparative Fit Index (CFI) and Tucker–Lewis Index (TLI) are exceed 0.90,

and the Root Mean Square Error of Approximation (RMSEA) and Standardized Root Mean Square Residual (SRMR) are below 0.08 (Hu & Bentler, 1999; Kline, 2016). The results thus obtained must be under above threshold values, concluding that the measurement model fits the data.

Construct validity evaluated using convergent and discriminant validity.

Convergent Validity

Convergent validity was supported as all standardized factor loadings were above 0.50 and statistically significant ($p < .001$), the Average Variance Extracted (AVE) for each construct exceeded 0.50, and Composite Reliability (CR) values were above the recommended level of 0.70, indicating variance and internal consistency (Fornell & Larcker, 1981).

Table 5.26

Convergent Validity

Construct	Item	Factor Loading	CR	AVE
Experiential enhancement	EE1	0.911	0.95	0.82
	EE2	0.938		
	EE3	0.812		
	EE4	0.948		
Product Positioning	PP1	0.847	0.89	0.69
	PP2	0.896		
	PP3	0.72		
	PP4	0.852		
Customer Engagement	CE1	0.795	0.87	0.62
	CE2	0.821		
	CE3	0.707		
	CE4	0.832		
Perceived Value	PV1	0.787	0.88	0.64
	PV2	0.804		
	PV3	0.824		
	PV4	0.794		

Reliability	RL1	0.765	0.87	0.62
	RL2	0.82		
	RL3	0.809		
	RL4	0.753		
Customer Retention	CRet1	0.814	0.89	0.67
	CRet2	0.813		
	CRet3	0.8		
	CRet4	0.844		
Trend Adaptation	TA1	0.837	0.9	0.68
	TA2	0.836		
	TA3	0.82		
	TA4	0.813		
Sales Growth	SG1	0.500	0.87	0.64
	SG2	0.961		
	SG3	0.735		
	SG4	0.949		
Innovation Capability	IC1	0.913	0.91	0.73
	IC2	0.752		
	IC3	0.791		
	IC4	0.945		
Growth Potentials	GP1	0.805	0.88	0.64
	GP2	0.84		
	GP3	0.681		
	GP4	0.865		

Source : Primary Data

The above table indicates that in convergent validity, all the constructs is under acceptable threshold with factor loadings ranging from 0.500 to 0.961. Each construct has composite reliability (CR) is varies from 0.825 to 0.947, which exceed the recommended threshold of 0.70 indicating strong internal consistency and construct reliability. Average Variance Extracted (AVE) which is above 0.5, ranging from 0.565 to 0.817. So, all the constructs are satisfied.

Discriminant Validity

Discriminant validity was analysed as the square root of AVE for each construct was greater than the inter-construct correlations, demonstrating that each construct is distinct (Hair et al., 2019).

Table 5.27

Discriminant Validity

Construct	EE	PP	CE	PV	RL	CRet	TA	SG	IC	GP
EE	**0.904**									
PP	0.447	**0.831**								
CE	0.077	0.089	**0.782**							
PV	0.047	0.03	-0.053	**0.804**						
RL	0.036	0.014	0.028	0.075	**0.794**					
CRet	0.022	0.032	-0.063	0.104	0.018	**0.818**				
TA	0.076	0.172	0.058	0.023	0.037	0.06	**0.823**			
SG	0.341	0.266	0.064	0.03	-0.056	0.023	0.015	**0.752**		
IC	-0.419	-0.234	0.018	0.034	-0.021	-0.021	-0.044	0.384	**0.862**	
GP	0.44	0.141	0.022	0.005	-0.008	0.076	0.072	0.396	-0.159	**0.785**

Source : Primary Data

The bold diagonal values represent the √AVE for each construct. The measurement model indicates excellent discriminant validity across all constructs. Here the square roots of AVE varies from 0.752 – 0.904 and inter-construct correlations ranging from –0.419 to 0.447.

Model Fit Indices of CFA Model

The table below shows the model fit indices of Confirmatory Factor Analysis of ten constructs and forty variables under positive impact factors, which indicates that all the fit indices are satisfied.

Table 5.28

Model fit Indices

Type	Fit Index	Obtained Value	Acceptable Threshold
Absolute Fit	RMR (Root Mean Square Residual)	0.017	< 0.05
	GFI (Goodness of Fit Index)	0.859	≥ 0.80
	AGFI (Adjusted Goodness of Fit Index)	0.833	≥ 0.80
	RMSEA (Root Mean Square Error of Approximation)	0.054	≤ 0.05 (good)
Incremental Fit	NFI (Normed Fit Index)	0.872	≥ 0.80
	RFI (Relative Fit Index)	0.857	≥ 0.80
	IFI (Incremental Fit Index)	0.928	≥ 0.90
	TLI (Tucker–Lewis Index)	0.918	≥ 0.90
	CFI (Comparative Fit Index)	0.927	≥ 0.90
Parsimonious Fit	PNFI (Parsimony Normed Fit Index)	0.777	≥ 0.50
	PCFI (Parsimony Comparative Fit Index)	0.826	≥ 0.50

Source : Primary Data

Overall, the CFA results indicate that the measurement model confirms strong reliability, convergent validity, and discriminant validity and model fit indices value confirming that the constructs used in the study are statistically sound and appropriate for subsequent structural modeling.

Structural Equation Modelling

Structural Equation Modelling is a statistical approach that tests theoretical models by estimating direct and indirect relationships among variables while accounting for measurement error and model complexity. *(Tabachnick & Fidell, 2019). The*

Structural Equation Modelling is adopted to establish a causal relationship between Positive Impact factor and Successful Implementation of Immersive Commerce.

Hypotheses Development

The Successful Implementation of the Immersive Commerce is the central outcome of the study, where the researcher analyse positive factors are the main part of the study. All the positive factors combine to facilitate the core outcome of the study. The factors constitute opportunities, customer loyalty, business performance and future potentials is hypothesized in this section.

The main hypothesis for the study is;

H1: There is causal relationship between Successful Implementation of Immersive Commerce with Opportunities, Customer Loyalty, Business Performance and Future Potentials of Immersive Commerce.

Table 5.29

Hypothesis on Relationship between Successful Implementation of Immersive Commerce with Positive Impact Factors

Sl. No.	Hypothesis Statement
H1	Experiential Enhancement has a positive and significant effect on the Successful Implementation of Immersive Commerce.
H2	Product Positioning has a significant effect on the Successful Implementation of Immersive Commerce.
H3	Perceived Value has a positive and significant effect on the Successful Implementation of Immersive Commerce.
H4	Sales Growth has a positive and significant effect on the Successful Implementation of Immersive Commerce.
H5	Innovation Capability has a positive and significant effect on the Successful Implementation of Immersive Commerce.
H6	Innovation Capability has a significant effect on Reliability in the Implementation of Immersive Commerce.
H7	Perceived Value has a significant effect on Experiential Enhancement in Immersive Commerce settings.
H8	Experiential Enhancement has a significant effect on Product Positioning in

	Immersive retail environments.
H9	Innovation Capability has a positive and significant effect on Perceived Value among retail customers.
H10	Growth Potentials have a significant effect on Sales Growth in Immersive Commerce-based retail operations.
H11	Product Positioning has a positive and significant effect on Sales Growth in Immersive Commerce adoption.
H12	Growth Potentials have a positive and significant effect on Innovation Capability in Immersive retail strategy.
H13	Sales Growth has a positive and significant effect on Experiential Enhancement for Immersive shopping environments.
H14	Perceived Value has a positive and significant effect on Growth Potentials in Immersive retail models.
H15	Sales Growth has a significant effect on Growth Potentials in Immersive Commerce adoption.
H16	Innovation Capability has a significant effect on Growth Potentials in Immersive Commerce Implementation.

In Structural Equation Modelling, the researcher indicates the relationship among Positive Impact Factor and Successful Implementation of Immersive Commerce. The Structural Equation Modelling tests the pathways, direct and indirect confirming that how all the positive impact factors influence the Successful Implementation of Immersive Commerce. The variables used in the models are;

a. Observed/endogenous variables

Experiential Enhancement

Perceived Value

Product Positioning

Innovation Capability

Sales Growth

Growth Potentials

Reliability

Successful Implementation of Immersive Commerce

b. Observed, exogenous variables

Customer Engagement

Customer Retention

Trend Adaptation

c. Unobserved, exogenous variables

e2 – error term of Product Positioning

e3 – error term of Perceived value

e5 – error term of Reliability

e4 – error term of Sales Growth

e6 - error term of Innovation Capability

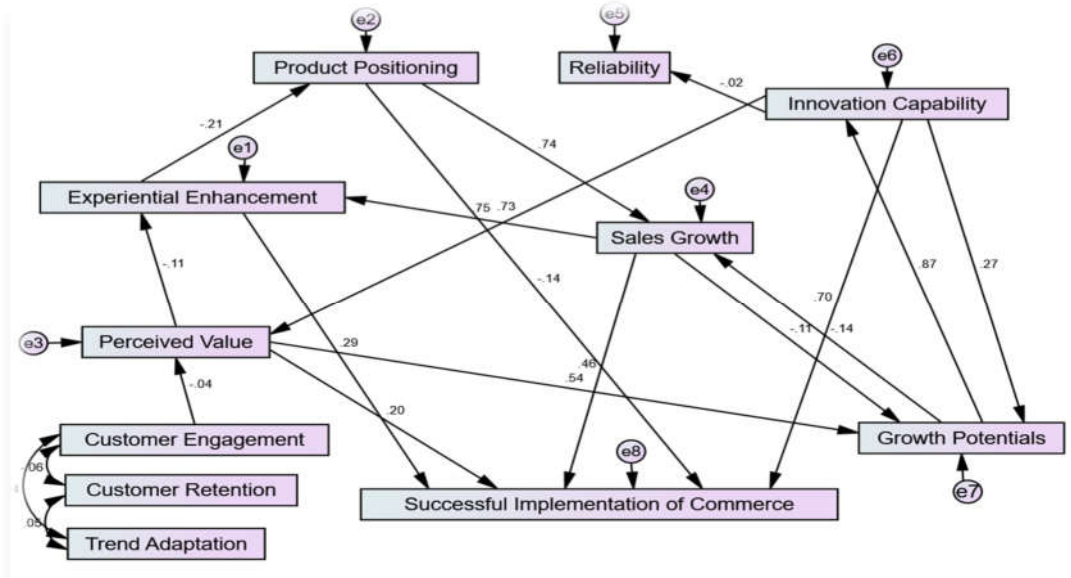
e7 - error term of Growth Potentials

e8 - error term of Successful Implementation of Immersive Commerce

e1 - error term of Experimental Enhancement

Figure 5.39

Structural Equation Modelling shows the relationship of Positive Impact Factors with Successful Implementation of Immersive Commerce



Compiled by the Researcher

Variable count in the Structural Equation Modelling is shown in the table given below

Table 5.30

Variable Count

Number of variables in your model	19
Number of observed variables	11
Number of unobserved variables	8
Number of exogenous variables	11
Number of endogenous variables	8

Compiled by the researcher

Results of Hypotheses Testing

The below table shows the Hypotheses Testing results indicating the path estimates, Standard error of estimates, Critical value and Significant values.

Table 5.31

Hypothesis Testing Results

Hypothesis Statement	Exogenous Variable	Endogenous Variable	Estimate	S.E.	C.R.	P-value	Std. Estimate (β)	Result
Experiential Enhancement → Successful Implementation of Immersive Commerce	EE	SIIC	0.182	0.022	8.267	***	0.287	Supported
Product Positioning → Successful Implementation of Immersive Commerce	PP	SIIC	-0.095	0.023	-4.19	***	-0.14	Supported

Perceived Value → Successful Implementation of Immersive Commerce	PV	SIIC	0.154	0.051	3.017	0.003	0.198	Supported
Sales Growth → Successful Implementation of Immersive Commerce	SG	SIIC	0.29	0.027	10.64	***	0.461	Supported
Innovation Capability → Successful Implementation of Immersive Commerce	IC	SIIC	0.447	0.043	10.51	***	0.701	Supported
Innovation Capability → Reliability	IC	RL	-0.022	0.058	-0.37	0.705	-0.019	Not Supported
Perceived Value → Experiential Enhancement	PV	EE	-0.137	0.045	-3.00	0.003	-0.111	Supported
Experiential Enhancement → Product Positioning	EE	PP	-0.195	0.135	-1.44	0.15	-0.209	Not Supported
Innovation Capability → Perceived Value	IC	PV	0.594	0.051	11.55	***	0.729	Supported
Growth Potentials → Sales Growth	GP	SG	-0.142	0.041	-3.45	***	-0.142	Supported
Product Positioning → Sales Growth	PP	SG	0.793	0.066	11.98	***	0.736	Supported
Growth Potentials → Innovation Capability	GP	IC	0.859	0.041	21.14	***	0.868	Supported

Sales Growth → Experiential Enhancement	SG	EE	0.75	0.061	12.38	***	0.753	Supported
Perceived Value → Growth Potentials	PV	GP	0.668	0.148	4.511	***	0.539	Supported
Sales Growth → Growth Potentials	SG	GP	-0.105	0.021	-5.05	***	-0.105	Supported
Innovation Capability → Growth Potentials	IC	GP	0.275	0.142	1.942	0.052	0.272	Marginally Supported

*** = p-value < 0.001 *Source : Primary Data*

The following descriptions explains the results of each hypotheses testing through Structural Equation Modelling

Effect of Experiential Enhancement on Successful Implementation of Immersive Commerce

The results of the structural model indicate that Experiential Enhancement has a positive impact on the Successful Implementation of Immersive Commerce, with an unstandardized coefficient (B) = 0.182, standardized coefficient (β) = 0.287, and p < .001. This indicates that improving the experience of Immersive retail contributes to the effective Implementation of Immersive Commerce strategies. This significant path demonstrates that when retailers create enjoyable, engaging, and emotional Immersive experiences customers are more likely to encompasses such technologies and continues interacting with them. This finding aligns with the theory experiential marketing, which tends to customers' affective and cognitive engagement with digital platforms strengthens brand attachment and loyalty. (Schmitt, 1999).

Effect of Product Positioning on Successful Implementation of Immersive Commerce

The study indicates that Product Positioning (PP) has a negative but statistically significant effect on the Successful Implementation of Immersive Commerce, with a standardized coefficient (β) = -0.140 and unstandardized coefficient (B) = -0.095, and $p < .001$. The negative coefficient represents the reverse relationship that suggests that the Immersive settings product positioning either inefficiently result in the hampering of the Successful Implementation of the Immersive Commerce

Effect of Perceived Value on Successful Implementation of Immersive Commerce

Based on an unstandardised coefficient (B) = 0.154, standardised coefficient (B) = 0.198, and $p = .003$ the outcomes indicate that Perceived Value (PV) positively and significantly influences the Successful Implementation of Immersive Commerce. This study indicates that the Implementation of Immersive retail technologies is more effective in the case when customers consider that such technologies are valuable, beneficial, and justify their efforts. Being a determinant of behavioural intention and satisfaction, perceived value depicts the consumer analysis of bargain between the advantages and expenses, such as time, effort, and trust. The increased perceived value enhances the Implementation results, as it can motivate customers to use Immersive shopping platforms more often, virtually test the products, and make informed purchases.

Effect of Sales Growth on Successful Implementation of Immersive Commerce

The results of the structural equation model show that Sales Growth has a positive and highly significant effect on the Successful Implementation of Immersive Commerce (SIIC), with an unstandardized coefficient (B) = 0.290, standardized coefficient (β) = 0.461, and $p < .001$. This indicates that an increase in Sales Growth resulting from Immersive retail directly contributes to the Successful Implementation of Immersive Commerce. The high standardized coefficient indicates that sales growth is a reinforcing mechanism that validates the execution of

Immersive technologies. This means that when customers engage with Immersive features, their purchase intentions strengthen, which leads better sales growth. The hypothesis is supported, confirming that sales growth significantly influences the Successful Implementation of Immersive Commerce

Effect of Innovation Capability on Successful Implementation of Immersive Commerce

The analysis reveals that Innovation Capability has a very strong positive and statistically significant impact on the Successful Implementation of Immersive Commerce (SIIC), with an unstandardized coefficient (B) = 0.447, standardized coefficient (β) = 0.701, and $p < .001$. This shows that retail with higher innovation capability are more Successful in implementing Immersive Commerce . Innovation capability refers to an capacity of the firm to generate and execute new ideas, technologies, and processes to develop products and services. (Lawson & Samson, 2001; Guan & Ma, 2003). Among all tested variables, there is a high standardized coefficient which confirms that innovation capability is the most influencing factor of Immersive Commerce. Thus, confirming that innovation capability significantly and positively influences the Successful Implementation of Immersive Commerce, making it the most vital driver of sustainable competitive advantage in digital retail transformation.

Effect of Perceived Value on Experiential Enhancement

The study reveals that Perceived Value has a negative yet statistically significant effect on Experiential Enhancement (EE), with an unstandardized coefficient (B) = -0.137, standardized coefficient (β) = -0.111, and $p = .003$. This inverse relationship signifies that as consumers' perceived value of Immersive Commerce increases, the marginal impact of experiential enhancements may decrease. The firm must concentrate on the saturation point, where no further sensory or emotional satisfaction is attached to Immersive features. The hypothesis is supported, hence it is confirming that perceived value significantly influences experiential enhancement, even though the relationship is negatively directed.

Effect of Experiential Enhancement on Product Positioning

The study reveals that the Experiential Enhancement has a negative and statistically insignificant effect on Product Positioning with an unstandardized coefficient (B) = -0.195, standardized coefficient (β) = -0.209, and p = .150. This means that enhanced and interactive Immersive experience does not improve the product positioning. The product positioning is a strategy taken by the retailers in improving the customer's perception towards the product. Both experiential enhancement and Product Positioning is complementary to each other. Hence the hypothesis is not supported, indicating that experiential enhancement does not significantly contribute to improved product positioning in Immersive Commerce technologies.

Effect of Innovation Capability on Perceived Value

The analysis indicates that Innovation Capability (IC) has a strong positive and statistically significant effect on Perceived Value (PV), with an unstandardized coefficient (B) = 0.594, standardized coefficient (β) = 0.729, and $p < .001$. This shows that firms possessing high levels of technological and creative innovation are better equipped to deliver Immersive experiences that customers perceive as valuable and meaningful. The strong standardized coefficient (β = 0.729) highlights that innovation capability is one of the most powerful predictors of perceived value in the Immersive retail environment. This is because innovation drives advancements in system usability, personalization, and realism, all of which enhance consumer perceptions of convenience, enjoyment, and reliability.

The significance of this relationship ($p < .001$) indicates that innovation directly translates into perceived consumer benefit. Retailers with innovative capabilities can introduce AR/VR tools that simulate physical interactions, provide instant information, and create emotionally satisfying experiences, all of which increase perceived worth. In the Indian retail context, where Immersive Commerce is still gaining traction, innovation serves as the foundation for building consumer trust and value recognition. Technological creativity allows firms to differentiate their offerings and deliver superior user experiences that go beyond mere novelty.

Furthermore, the positive relationship between innovation capability and perceived value demonstrates the strategic importance of innovation as both an operational and marketing asset. Firms that continually upgrade their Immersive platforms and integrate advanced digital features (e.g., AI-driven customization or virtual try-ons) can reinforce customer perceptions of quality and modernity. Therefore, Hypothesis is strongly supported, confirming that higher innovation capability leads to greater perceived value, thereby strengthening consumers' willingness to adopt and engage with Immersive Commerce technologies.

Effect of Growth Potential on Sales Growth

The SEM analysis reveals that Growth Potential (GP) has a negative but statistically significant effect on Sales Growth (SG), with an unstandardized coefficient (B) = -0.142, standardized coefficient (β) = -0.142, and $p < .001$. The negative direction of this relationship suggests that although firms perceive high potential for growth in Immersive Commerce, this potential does not necessarily translate into immediate sales increases. In fact, during the early stages of Immersive Commerce Implementation, investments in technology, infrastructure, and staff training may temporarily suppress short-term sales performance due to high initial costs and adaptation challenges. This finding underscores the lag effect often observed between technological innovation and financial return, where firms must first build capability and consumer awareness before realizing measurable sales benefits.

The significance of the relationship ($p < .001$) indicates that growth potential is indeed linked to sales outcomes, but in an inverse manner, possibly reflecting market maturity effects or resource reallocation during scaling phases. Retailers focusing on Immersive Commerce expansion may divert resources from traditional sales channels to support innovation, which can temporarily affect short-term revenue performance. In the Indian retail context, this finding is particularly relevant as many firms are in the transitional phase of adopting Immersive technologies, where the potential for future growth is recognized but not yet fully monetized. However, in the long run, this strategic investment is expected to yield substantial

returns once consumer familiarity and adoption rates increase. The result also highlights the importance of managing expectations, recognizing that early-stage Immersive investments are primarily growth enablers rather than immediate profit drivers. Therefore, Hypothesis is supported, indicating that while growth potential significantly affects sales growth, the relationship is negative due to transitional and developmental phases inherent in Immersive Commerce adoption.

Effect of Product Positioning on Sales Growth

The results indicate that Product Positioning (PP) has a strong positive and highly significant effect on Sales Growth (SG), with an unstandardized coefficient (B) = 0.793, standardized coefficient (β) = 0.736, and $p < .001$. This finding confirms that well-designed and strategically managed product positioning within Immersive environments significantly drives sales growth. When products are visually appealing, clearly categorized, and contextually presented in AR/VR settings, consumers are more likely to explore, interact, and make purchase decisions. The strong positive β value highlights that effective product positioning enhances product visibility, brand recall, and purchase intent, resulting in improved sales performance. This result demonstrates that Immersive Commerce not only enhances customer experience but also contributes directly to tangible business outcomes such as revenue growth and market expansion.

The significance level ($p < .001$) confirms that this relationship is robust and consistent. Effective product positioning in Immersive environments enhances consumers' perceived control, trust, and satisfaction by simplifying decision-making processes. In the Indian retail scenario, where consumers are highly diverse in preferences and digital literacy levels, intuitive product positioning within Immersive applications is crucial for reducing shopping complexity. Retailers who use data-driven visualization, 3D modeling, and contextual recommendations can effectively replicate the advantages of in-store displays in virtual form. Moreover, Immersive product positioning supports emotional connection and storytelling, creating differentiated experiences that drive repeat purchases. This finding also

implies that Immersive Commerce platforms must integrate design thinking and marketing strategy to ensure that visual engagement aligns with sales objectives. Therefore, Hypothesis is supported, confirming that clear, appealing, and strategically designed product positioning in Immersive environments significantly enhances sales growth, reinforcing its importance as a critical factor for Successful Immersive retail performance.

Effect of Growth Potential on Innovation Capability

The analysis demonstrates that Growth Potential (GP) has a very strong positive and statistically significant effect on Innovation Capability (IC), with an unstandardized coefficient (B) = 0.859, standardized coefficient (β) = 0.868, and $p < .001$. This exceptionally high coefficient indicates that firms perceiving high growth opportunities in the Immersive Commerce sector are also the ones most actively developing their innovation capabilities. The strong standardized value (β = 0.868) suggests that perceived market potential acts as a catalyst for innovation, motivating firms to invest in research, technological infrastructure, and creative experimentation. The significance ($p < .001$) confirms that growth potential is not merely an aspirational construct but a practical driver of technological advancement within the Immersive retail ecosystem.

This finding underscores the strategic interdependence between innovation and future growth expectations. When organizations anticipate future expansion or competitive advantage through Immersive technologies, they are more likely to enhance their innovation capacity by allocating resources toward R&D, digital upskilling, and platform development. In the Indian retail context, this relationship is particularly important as the sector undergoes digital transformation driven by younger consumers and rising e-Commerce adoption. Retailers viewing Immersive Commerce as a long-term growth avenue are investing proactively in innovation to capture early mover advantage. This process creates a feedback loop where innovation fuels competitiveness, and competitiveness reinforces growth potential. Moreover, this relationship implies that managerial vision and market foresight are

critical for sustaining innovation intensity. Therefore, Hypothesis is supported, confirming that higher growth potential significantly and positively drives innovation capability, establishing it as a key enabler of technological readiness and organizational competitiveness in Immersive Commerce.

Effect of Sales Growth on Experiential Enhancement

The SEM results show that Sales Growth (SG) has a strong positive and highly significant effect on Experiential Enhancement (EE), with an unstandardized coefficient (B) = 0.750, standardized coefficient (β) = 0.753, and $p < .001$. This indicates that as retail sales improve through Immersive Commerce initiatives, firms tend to invest more in developing enhanced experiential features to sustain and expand their success. The high standardized coefficient (β = 0.753) confirms that a reinforcing relationship exists between financial growth and experiential quality, suggesting that sales performance provides the necessary resources and strategic confidence for retailers to further enhance Immersive customer experiences. The significant p-value establishes that this relationship is statistically robust and consistent across the sample.

This finding emphasizes that financial success and experiential improvement are mutually reinforcing dimensions of Immersive Commerce. When Immersive technologies drive higher customer conversions and revenue, firms can reinvest profits into upgrading AR/VR infrastructure, refining interface designs, and expanding experiential content. This cyclical relationship strengthens both user engagement and brand differentiation. In the Indian retail context, where the digital ecosystem is rapidly expanding, rising sales through Immersive Commerce reflect consumers' growing acceptance of virtual shopping experiences. Firms achieving sales gains from Immersive strategies are more motivated to offer richer, more interactive, and emotionally appealing experiences to retain customers. The result highlights that financial growth not only validates Immersive technology but also enables continuous experiential innovation. Therefore, Hypothesis is supported, confirming that sales growth has a positive and significant impact on experiential

enhancement, reflecting a strategic synergy between business performance and experience quality.

Effect of Perceived Value on Growth Potential

The findings reveal that Perceived Value (PV) has a positive and significant effect on Growth Potential (GP), with an unstandardized coefficient (B) = 0.668, standardized coefficient (β) = 0.539, and $p < .001$. This demonstrates that when consumers perceive Immersive Commerce systems as valuable and beneficial, it positively shapes the retailer's growth prospects in the Immersive Commerce domain. The positive coefficient indicates that perceived value is a strong psychological and market indicator of long-term scalability and business expansion. Retailers offering Immersive shopping experiences that deliver high utility, enjoyment, and emotional satisfaction are better positioned to attract and retain customers, thereby improving their market potential and brand equity. The significant p-value ($p < .001$) confirms that this relationship is statistically reliable and holds strong implications for strategic decision-making.

This finding underscores the fact that customer perception and business growth are deeply interconnected. In Immersive Commerce, perceived value reflects how effectively technology meets or exceeds customer expectations through personalized experiences and credible product representation. Higher perceived value leads to greater customer trust, advocacy, and loyalty all of which contribute to sustainable growth potential. For Indian retailers, this insight is crucial as the market transitions toward experience-driven Commerce. The more consumers recognize the tangible and emotional benefits of Immersive shopping, the more likely retailers are to experience growth in both customer base and market share. Moreover, perceived value acts as a mediating variable linking innovation capability and growth potential, suggesting that innovation must translate into customer-recognized value to be commercially viable. Hence, Hypothesis is supported, confirming that perceived value positively and significantly enhances growth potential by fostering consumer trust and long-term engagement in Immersive Commerce systems.

Effect of Sales Growth on Growth Potential

The analysis indicates that Sales Growth (SG) has a negative but statistically significant effect on Growth Potential (GP), with an unstandardized coefficient (B) = -0.105, standardized coefficient (β) = -0.105, and $p < .001$. The negative direction of this relationship suggests that while Immersive Commerce initiatives drive immediate sales growth, rapid expansion may temporarily constrain perceived future growth potential. This could occur when firms prioritize short-term revenue gains over long-term strategic investments, leading to temporary resource saturation. The significant p-value ($p < .001$) confirms that the relationship is meaningful and reflects transitional challenges commonly observed in technology adoption cycles.

This finding highlights a dynamic trade-off between short-term performance and long-term scalability. During the early phase of Immersive Commerce Implementation, retailers may experience strong sales surges due to novelty and customer curiosity; however, maintaining this momentum requires continued innovation and system enhancement. Without reinvestment, the perceived potential for further growth may decline as the market begins to stabilize. In the Indian context, where Immersive Commerce is still an emerging trend, firms focusing solely on sales metrics may overlook the strategic need to strengthen infrastructure, content development, and technological capacity for sustained growth. The result serves as a cautionary insight for managers to reinvest a portion of sales revenue into long-term innovation and experience optimization. Therefore, Hypothesis is supported, indicating that while sales growth significantly affects growth potential, the negative relationship reflects the importance of balancing short-term profitability with sustained technological and market development in Immersive Commerce strategies.

Effect of Innovation Capability on Growth Potential

The SEM results demonstrate that Innovation Capability (IC) has a positive and marginally significant effect on Growth Potential (GP), with an unstandardized coefficient (B) = 0.275, standardized coefficient (β) = 0.272, and $p = .052$. Although

the significance level is slightly above the conventional threshold, the positive direction indicates that firms with higher innovation capability tend to exhibit greater growth potential. This relationship highlights that innovation acts as a strategic enabler, empowering firms to anticipate and exploit future market opportunities in Immersive Commerce. Innovative firms are more likely to adopt emerging technologies, develop creative retail solutions, and respond quickly to shifting consumer behaviors, all of which strengthen long-term growth trajectories.

While the p-value (.052) suggests moderate significance, the strong β value (.272) reflects a meaningful relationship in practical terms. In the context of Indian retailing, this result is especially relevant, as innovation capability determines how well firms adapt to technological disruption and consumer demand for enhanced experiences. Firms that continuously innovate can maintain competitiveness by introducing new Immersive formats, improving operational efficiency, and enhancing customer satisfaction. Furthermore, innovation capability fosters organizational agility, allowing firms to identify and capture growth opportunities ahead of competitors. Therefore, even though the statistical significance is marginal, the positive relationship between innovation capability and growth potential reinforces the notion that innovation is foundational for long-term scalability. Hence, Hypothesis is partially supported, indicating that firms with stronger innovation capabilities exhibit higher growth potential, emphasizing innovation's crucial role in driving the future evolution of Immersive Commerce.

5.12 Conclusion

This chapter comprehensively examined the positive impact factors influencing the Successful Implementation of Immersive Commerce in the Indian retail sector. The findings clearly demonstrate that Immersive Commerce is not merely a technological enhancement but a strategic driver of experiential value creation, business performance improvement, and long-term growth orientation. Retailers strongly perceive experiential enhancement, perceived value, sales growth, and innovation capability as critical enablers of Successful Immersive Commerce

Implementation, with innovation capability emerging as the most influential determinant. The results further reveal that Immersive Commerce contributes significantly to sales growth and competitive positioning, while also reinforcing experiential investments through a positive feedback loop between performance and experience enhancement.

At the same time, the study highlights important transitional dynamics, such as the short-term trade-offs between growth potential and immediate sales outcomes, underscoring Immersive Commerce as a long-term strategic investment rather than a quick-return initiative. The structural equation modelling results confirm that the Successful Implementation of Immersive Commerce is shaped by a complex interplay of opportunities, customer value perceptions, business performance outcomes, and future-oriented innovation strategies. Overall, this chapter provides strong empirical evidence that retailers who strategically invest in innovation, experiential quality, and value-driven Immersive solutions are better positioned to achieve sustainable competitive advantage and Successful Immersive Commerce adoption in the evolving Indian retail landscape.

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CHAPTER 6

ANALYSIS OF NEGATIVE IMPACT FACTORS INFLUENCING THE SUCCESSFUL IMPLEMENTATION OF IMMERSIVE COMMERCE

- *Introduction*
- *Objectives*
- *Hypotheses*
- *Methodology and Database*
- *Variables Used for the Study*
- *Effect of Challenges on Implementation of Immersive Commerce*
- *Effect of Risks and Barriers on Implementation of Immersive Commerce*
- *Relationship of Negative Impact Factors on Successful Implementation of Immersive Commerce*
- *Conclusion*
- *References*

Anoop, P. Opportunities and challenges of implementing immersive commerce strategy in modern Indian retailing. Thesis.2026. Farook College (Autonomous), University of Calicut.

6.1 Introduction

Success of Immersive Commerce implementation is affected not only the positive impact factors like its opportunities, customer loyalty, business performance and future potentials, but some negative impact factors also. The researcher clearly defines about the negative factors or the hindering factors that negatively affect the Successful Implementation of the Immersive Commerce. This pull factors is referred as Negative Impact Factors.

Negative Impact Factors are those factors that lead to weaken the confidence level of retailers for the effective execution of Immersive Commerce. It reduces and hinders the long term adoption. High Implementation and maintenance cost are affected by the retailers, especially small and medium stores, in investing in Immersive Commerce. Technological illiteracy and Infrastructural hindrance have influence on retailer's dissatisfaction. Other negative impact factors such as security and privacy concerns and inclusivity significantly influence the success of Immersive Commerce Implementation. Consumer readiness plays a vital role that if a customer is unfamiliar or uncomfortable with Immersive features offered by the retailer, they may consider as unnecessary or complex, thus decreasing the acceptance. Security and privacy concerns regarding data security, data tracking, biometric recognition, and personalized Immersive data also restrict the reliability and trust in adoption. Operational risks also lowering its smooth Implementation. Inclusivity including lack of accessibility for senior citizens or physically or mentally challenged retailers can disrupt the perception of Implementation of Immersive Commerce.

This chapter is based on the two objectives;

1. To identify key operational and strategic challenges faced by retailers in implementing Immersive Commerce.
2. To analyse the risks and barriers perceived by retailers in adopting Immersive Commerce.

6.2 Objectives

The objectives thus formulated to study the challenges, risks and barriers are;

1. To identify key operational and strategic challenges faced by retailers in implementing Immersive Commerce.
2. To analyze the risks and barriers perceived by retailers in adopting Immersive Commerce.

These main two objectives of the research, which identified as the factors, that negatively influences the Successful Implementation of Immersive Commerce. On first stage, the researcher identified the operational and strategic challenges that hinder the Immersive Commerce adoption. Operational challenges are those challenges related to the practicable Implementation or execution of Immersive Commerce where as strategic challenges involve Long-term organizational planning & adoption readiness that affect its Successful Implementation. On the second stage, risk and barriers perceived by the retailers is analyzed.

6.3 Hypotheses

The hypotheses formulated based on Literature and conceptual understanding of immersive commerce implementation. The challenges, risk and barriers has a great impact on the effectiveness of Immersive commerce, as it hinder or weaken the smooth implementation.

The main hypotheses under this study are;

H1: There is a significant difference in the perception of operational and strategies challenges in implementing immersive commerce across different demographic groups of retailers

H2: There is a significant difference in the perception of risks and barriers in adopting immersive commerce across different demographic groups of retailers.

H3: Negative impact factors have a significant negative effect on the Successful Implementation of Immersive Commerce in modern Indian retailing.

6.4 Methodology and Database

In this study, basic statistical techniques were adopted to analyze the perceptions of retailers towards negative impact factors that influences with the Implementation of

Immersive Commerce. The primary objective of the analysis was to identify and analyse whether the perceptions significantly vary across the demographic and retailers attributes. The analysis was conducted using IBM SPSS Statistics, ensuring reliability, accuracy, and standardized interpretation of results.

Descriptive Statistics such as Mean, Standard Deviation, and Ranking were used to summarize the responses for each construct and its indicators. The Mean score indicates the overall average level of agreement or disagreement among retailers on specific negative impact factors. This is based on the statement prepared for likert scale questions adopted in the questionnaire. A higher mean score indicates stronger perceived challenges, risks, or barriers. Standard Deviation (SD) measures the dispersion or variation in responses; a lower SD indicates that most respondents hold similar views, while a higher SD reflects more diverse opinions. (Field, 2018). Based on the mean values of constructs and items, ranking was performed to identify the most critical negative impact dimensions influencing the Implementation of Immersive Commerce. This ranking is used to highlight priority issues that retailers perceive as major obstacles, such as technological constraints, financial risks, security/privacy concerns, or customer readiness issues. (Pallant, 2020).

To examine whether perceptions varied across demographic characteristics, Inferential Statistical Tests were employed. The Independent Samples t-Test was used when comparing perceptions based on gender viz., male and female and determines whether the difference in the mean perception scores of the two groups is statistically significant Field, A. (2018). A significance value (p-value) less than 0.05 indicates that the difference is meaningful and not due to chance.

For demographic variables with more than two categories such as age group, educational qualification, years of retail experience, type of retail format, store annual turnover, and retail sector, One-Way ANOVA (Analysis of Variance) was applied. ANOVA tests whether the mean difference in perception scores across multiple groups is statistically significant. If the ANOVA results show $p < 0.05$, it indicates that at least one group differs significantly from the others. In such cases, Post-Hoc Tukey HSD tests were conducted to identify exactly which groups differ from one another.

For all inferential tests, effect sizes were examined to understand the strength of the differences in perceptions. Additionally, basic statistical assumptions such as normality and homogeneity of variance were checked before running the tests to ensure validity and reliability of results.

Overall, the combination of descriptive and inferential statistical tools allowed the study to:

1. Evaluate the intensity and importance of negative impact factors,
2. Identify demographic variations in perceived challenges, risks, and barriers, and
3. Generate meaningful insights for practical recommendations and strategic decision-making in Immersive Commerce adoption.

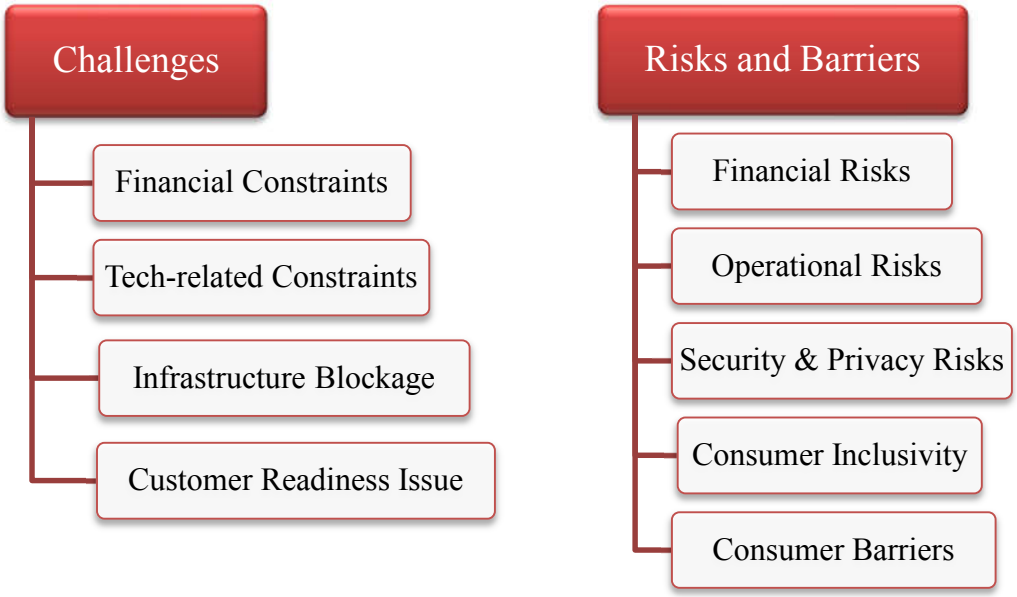
6.5 Variables Used for the Study

The variables used to study the negative impact factors are shown as

Figure 6.1

Variables used for the study

The details of Variables used in the study are;



Compiled by the Researcher

Table 6.1

Categorical Variables

Categorical Variable	Type of Category	Responses
Gender	Nominal	Male/Female/Others
Age	Ordinal	(18-40/41-60/60 Above)
Educational Qualifications	Ordinal	(SSLC/Diploma/Degree/Masters/Professional Degree/Ph.D)
Year of Experience	Ordinal	(1-3 /4-7/8-10/10 Above)
Position/Designation	Nominal	(Owner/Manager/Franchise Partner/Others)
Retail Format	Nominal	(Brick and Mortar/E-Commerce or M.Commerce/Omni-channel)
Annual Turnover	Ordinal	(50 Lakhs -1 crore/ 1 crore-5 crore /5 crore- 10 crore /Above 10 crore)
Location	Nominal	(Bengaluru/Mumbai/DelhiNCR/Hyderabad/Pune/ Chennai/Ahamedabad/Indore/Jaipur/ Kochi/Trivandrum/Coimbatore/Bubaneswar)
Category of Retail	Nominal	(Apparels and Fashions/ Electronics and Gadgets/ Grocery and FMCG /Furniture and Home Decor/ Beauty and Health care/ Others)

Source: Primary Data

Here, Gender, Age, Educational Qualifications, Year of Experience, Position/Designation is considered as Demographic Characteristics of respondents while, other variables are considered as Retail Characteristics of the respondents

6.6 Effect of Challenges on Implementation of Immersive Commerce

The retailers challenges to implement the Immersive Commerce is statistically analyzed based on various statistical tools like mean, standard deviation, ranking method, independent T test, ANOVA and Post Hoc Test.

6.6.1 Descriptive Statistics of Challenges

The descriptive statistics of Challenge is shown as follows;

Table 6.2

Descriptive Statistics of Challenges

Constructs	Factors	N	Mean	SD	Rank
Financial Constraints	Implementing Immersive technology need high investment	390	3.68	.630	2
	Budget limitations may restrict Immersive technology Implementation.	390	3.69	.615	1
	We face difficulty in clarifying ROI for Immersive Commerce	390	3.67	.649	3
	Financial risks cause further expansion of Immersive services	390	3.66	.651	4
Tech-related Constraints	Access to advancement in Immersive technology is limited.	390	3.66	.649	4
	Technical disrupts hinder customer experience.	390	3.71	.639	2
	Difficulty about internal expertise to manage Immersive tools	390	3.73	.672	1
	Dependence on external tech partners affects Implementation	390	3.68	.623	3
Infrastructure Blockage	Our current infrastructure is not suitable for Immersive setup.	390	3.61	.602	3
	Space and layout limitations restrict AR/VR integration.	390	3.63	.620	1
	Lack of digital infrastructure affects Immersive adoption.	390	3.62	.621	2
	Store upgrades are required for Immersive tech compatibility.	390	3.62	.591	2
Consumer Readiness Issue	Many customers are not familiar with Immersive interfaces.	390	4.61	.509	4
	Elderly customers find it difficult to use Immersive tools.	390	4.63	.500	3
	Consumer hesitation limits usage of Immersive features.	390	4.77	.447	1
	Lack of awareness among customers hinders adoption.	390	4.64	.498	2

Source: Primary Data

Based on the descriptive statistics, the greatest issue with the introduction of immersive commerce is the financial limitations. The retailers firmly believe that the largest financial problem is the budget constraint (Mean = 3.69, Rank 1) and then the high start-up cost of the immersive technologies (Mean = 3.68, Rank 2). The perceived financial risk is also barred by the difficulty in calculating the financial payoff of the investment (Mean = 3.67, Rank 3), future growth of the immersive services is also discouraged by the perceived financial risk (Mean = 3.66, Rank 4). Overall, the values of mean are tightly concentrated, and the standard deviations are medium, which points to the fact that the majority of the retailers have a due sense that the barrier of financial viability is one of the primary obstacles to implementing immersive commerce.

Restriction of technology also emerges as a big problem particularly in the area of inner capacity and the systems dependability. Lack of knowledge on the management of immersive tools (Mean = 3.73, Rank 1) is the most crucial issue and a gap in the retail organisations skills. Technical inconveniences resulting to poor customer experience are also identified (Mean = 3.71, Rank 2). The dependence on the technology partners (Mean = 3.68, Rank 3) and the incapability to use more sophisticated immersive technologies (Mean = 3.66, Rank 4) also make the implementation complicated. These findings suggest that successful initiation of immersive commerce demands that there should be technological readiness and internal technical skill.

The implementation of immersive commerce is moderately affected by the infrastructure-related issues as the mean scores show the value slightly over 3.60. The most intense phenomenon of infrastructure that inhibits an effective implementation of AR/VR can be seen as perceived in store space and layout (Mean = 3.63, Rank 1). The lack of good digital infrastructure (Mean = 3.62, Rank 2) and the necessity to work on the store improvements to ensure that it is technologically compatible (Mean = 3.62, Rank 2) is a huge blow as well. Retailers also feel that their existing infrastructures are not fully immersive compatible (Mean = 3.61, Rank 3). Through these findings, the material and operational limitations faced by retailers

in integrating immersive technologies in a physical retail outlet have been established.

The consumer readiness issue issues are the most challenging of all the constructs whose mean values are very high with a standard of over 4.60. The most significant issue is the unwillingness to engage in the immersive features among the consumers (Mean = 4.77, Rank 1) that is assigned the value of strong resistance or uncertainty among the customers. Other barriers to the adoption of immersive technologies include the lack of awareness of the same (Mean = 4.64, Rank 2) and difficulties of older customers in using immersive technology (Mean = 4.63, Rank 3). The readiness gap is also reinforced by the fact that the customers do not know much about immersive interfaces (Mean = 4.61, Rank 4). Collectively, these findings underscore the fact that consumer and consumer knowledge as well as access play a vital role in overcoming the barrier to adoption in immersive commerce.

6.6.2 Gender-Wise Analysis

This section deals with Gender wise analysis of retailers key challenges that hinder the Implementation of Immersive Commerce. For this purpose Independent Sample t-test is conducted using IBM SPSS software. The following were the hypotheses formulated to determine the relationship between gender and challenges of implementing Immersive Commerce

The main hypothesis is

H1**:** There is a significant difference in the perception of operational and strategic challenges in implementing Immersive Commerce between male and female retailers.

Table 6.3

Gender Wise Hypotheses on Challenges

Hypothesis No.	Hypothesis
H1a	There is a significant difference between male and female retailers in their perception of financial constraints in Immersive Commerce.
H1b	There is a significant difference between male and female retailers in their perception of Tech-related constraints in Immersive Commerce.
H1c	There is a significant difference between male and female retailers in their perception of Infrastructure Blockage in Immersive Commerce.
H1d	There is a significant difference between male and female retailers in their perception of Consumer Readiness Issue in Immersive Commerce.

Table 6.4

Independent Sample t-test showing gender on Challenges

Construct	Gender	N	Mean	SD	t-value	p-value	Remarks
Financial Constraints	Male	252	2.3681	0.53948	2.246	0.025	Significant
	Female	138	2.2391	0.54695			
Tech-Related Constraints	Male	252	2.3006	0.54037	– 0.346	0.729	Not significant
	Female	138	2.3207	0.5586			
Infrastructure Blockage	Male	252	2.3919	0.51662	0.442	0.659	Not significant
	Female	138	2.3678	0.5119			
Consumer Readiness Issue	Male	252	1.3681	0.44431	1.69	0.092	Not significant
	Female	138	1.288	0.45198			

Source : Primary Data

The t-test results indicate that gender differences are present for Financial Constraints, where males perceive more financial barriers than females. The other constructs like Tech-related constraints and infrastructure blockage have no significant difference in the perception and attitude of facing the challenges. The Customer Readiness Issue is marginally significant where the males perceive

slightly more than female retailers. The brief description about each constructs is as follows.

Out of total respondents, the males are higher than when compared to females, male respondents may have suffered more financial constraints at the Implementation stage. The study reveals that the Financial Constraints construct shows a significant difference in gender, with male retailers (Mean = 2.3681, SD = 0.53948) reporting a higher perception of financial constraints compared to female retailers (Mean = 2.2391, SD = 0.54695). The t-test result (t = 2.246, p = 0.025) shows that males retailers has greater challenges in terms of financial concerns like high cost of Implementation, budget limitations, difficulty in justifying Return on Investment (ROI) and expansion of Immersive services when implementing Immersive Commerce technologies in Indian retail. Financial constraints may play a more important role for male retailers, potentially impacting their willingness or ability to invest in new technologies.

For the Tech-Related Constraints construct, both the gender has equally concern about technological challenges. No significant gender difference was found (t = –0.346, p = 0.729). Both male retailers (Mean = 2.3006, SD = 0.54037) and female retailers (Mean = 2.3207, SD = 0.55860) perceive similar levels of difficulty in utilizing technological solutions for Immersive Commerce. These results indicates that the challenges related to technology such as compatibility and integration issues, the complexity in accessing software/hardware, or the fast growth of technological change are equally experienced by both male and female retailers. The gender similarity in Tech-related constraints highlights the universal nature of these technological barriers across genders in the Indian retail sector.

Similarly, there is no significant difference in male and female about the constraints of infrastructure. That means, the study indicates that Infrastructure Blockage have similarity in gender (t = 0.442, p = 0.659), with male retailers (Mean = 2.3919, SD = 0.51662) and female retailers (Mean = 2.3678, SD = 0.51190) both reporting similar perceptions of infrastructure challenges. Infrastructure-related barriers, such as limited access to advanced technology, technical glitches, lack of in-house expertise and dependence in external tech partners appear to be experienced in equal measure

by both male and female retailers. This result suggests that infrastructure is a critical challenge for retailers of both genders when it comes to Immersive Commerce Implementation.

The Customer Readiness Issue construct indicates a marginally significant difference in perceptions between male and female retailers ($t = 1.690$, $p = 0.092$), with male retailers (Mean = 1.3681, SD = 0.44431) perceiving customer readiness as slightly higher compared to female retailers (Mean = 1.2880, SD = 0.45198), it suggests that male retailers expectation about the readiness of consumers. Consumer readiness can be attained through offering digital literacy, technological confidence and easy accessibility in compatible devices. In short, the study reveals that Male retailers make strategic intentions on customer attitude, knowledge, and awareness about the Immersive Commerce tools than female retailers.

6.6.3 Age Wise Analysis

This section deals to check whether there is any influence of age of retailers on acceptance of challenges. ANOVA test is conducted to understand the perceptive of retailers.

The main hypothesis is

H1 **:** There is a significant difference in the perception of operational and strategic challenges in implementing Immersive Commerce across age of the respondents.

Table 6.5

Age Wise Hypotheses on Challenges

Hypothesis No.	Hypothesis
H1a	There is a significant difference in age of retailers and their perception of financial constraints in Immersive Commerce.
H1b	There is a significant in age of retailers and their perception of Tech-related constraints in Immersive Commerce.
H1c	There is a significant difference in age of retailers and their perception of Infrastructure Blockage in Immersive Commerce.
H1d	There is a significant difference in age of retailers and their perception of Consumer Readiness Issue in Immersive Commerce.

The following table showing ANOVA of Age wise category of respondents with perception of challenges

Table 6.6

ANOVA table showing Age wise Category with Challenges

Construct	Age Category	N	Mean	SD	F-value	p-value	Remarks
Financial Constraints	18–40	261	2.3228	0.5468	0.073	0.929	Not Significant
	41–60	120	2.3167	0.5564			
	60+	9	2.3889	0.3333			
Tech-Related Constraints	18–40	261	2.3352	0.5399	3.176	0.043	Significant
	41–60	120	2.2792	0.5396			
	60+	9	1.8889	0.6859			
Infrastructure Blockage	18–40	261	2.3544	0.5201	1.778	0.17	Not Significant
	41–60	120	2.4292	0.5064			
	60+	9	2.6111	0.3773			
Customer Readiness Issue	18–40	261	1.3889	0.4558	5.261	0.006	Significant
	41–60	120	1.25	0.4213			
	60+	9	1.1111	0.3333			

Source: Primary Data

The ANOVA results of Financial Constraints show that the influence of age on financial constraints is not statistically significant ($F = 0.073$, $p = 0.929$). That means, age has no role in shaping how retailers acceptance to take financial challenges for adopting Immersive tools. The results indicate that retailers across all three age categories ie. 18–40, 41–60, and above 60 indicated similar perceptions of financial constraints as reflected in the very close mean scores (2.3228, 2.3167, and 2.3889 respectively). The standard deviations are also indicating consistent responses within each age group. In short, this hypothesis formulated by the researcher is rejected.

The result of ANOVA of Tech-related Constraints shows that there is a strong influence of age on Tech-related constraints. There is a statistically significant between age and the construct showing the variation of F = 3.176, p = 0.043, indicating that the perception of technological challenges differs across age groups. Younger retailers (18–40) report the highest challenge level (M = 2.3352), followed by middle-aged retailers (41–60) (M = 2.2792). The retailers with above 60 years show a comparatively lower perception of technological constraints (M = 1.8889), since their standard deviation is higher, indicating variability within the group. These findings suggest that the hypothesis is accepted and the younger retailers have more aware about the complexities in operating Immersive technologies, such as software glitches, device incompatibility, or the need for technological upgradation.

The result analysis of the construct, Infrastructure blockage gave F = 1.778, p = 0.170 indicating that there is no statistically significant and thus, age does not play a significant role in the perceptions of the infrastructure blockage. The average scores (M = 2.3544 in the age group of 1840, M = 2.4292 in the age group of 4160, and M = 2.6111 in the age group above 60 years) show a slow rise over age, and it can be concluded that older retailers experience a relatively more challenging situation in terms of infrastructure. Lack of digital infrastructure, low tech compatibility, less space and layout, prevailing infrastructure facilities shortcomings led the ineffectiveness of Immersive Commerce adoption

The hypothesis is accepted that the Customer readiness has a age group difference (F = 5.261, p = 0.006) and thus indicates that the age of retailers has a significant impact on their view of customer willingness and preparedness to engage in Immersive Commerce. Retailers aged 18 to 40 years are most concerned about the customer readiness issue (M = 1.3889), and retailers of 41 to 60 years (M = 1.2500) are the least concerned with the issues of customer readiness. This is an indication that younger retailers are more skeptical of the level of customer readiness, having the perception that consumers might not be digitally aware and confident about the use of Immersive Commerce tools.

Table 6.7

Multiple Comparisons of Age and Challenges

Constructs	Age (I)	Age (J)	Mean Difference (I-J)	Std. Error	Sig.
Financial Constraints	18-40	41-60	.00613	.06025	.994
		60 above	-.06609	.18519	.932
	41-60	18-40	-.00613	.06025	.994
		60 above	-.07222	.18878	.923
	60 above	18-40	.06609	.18519	.932
		41-60	.07222	.18878	.923
Tech-Related Constraints	18-40	41-60	.05608	.05991	.618
		60 above	.44636*	.18417	.042
	41-60	18-40	-.05608	.05991	.618
		60 above	.39028	.18774	.096
	60 above	18-40	-.44636*	.18417	.042
		41-60	-.39028	.18774	.096
Infrastructure Blockage	18-40	41-60	-.07476	.05662	.385
		60 above	-.25670	.17406	.304
	41-60	18-40	.07476	.05662	.385
		60 above	-.18194	.17743	.561
	60 above	18-40	.25670	.17406	.304
		41-60	.18194	.17743	.561
Customer Readiness Issue	18-40	41-60	.13889*	.04889	.013
		60 above	.27778	.15028	.155
	41-60	18-40	-.13889*	.04889	.013
		60 above	.13889	.15320	.636
	60 above	18-40	-.27778	.15028	.155
		41-60	-.13889	.15320	.636
*. The mean difference is significant at the 0.05 level.					

Source: Primary Data

The Tukey HSD post hoc results for age groups (18–40, 41–60, and 60+) show that there are no significant pair wise differences for Financial Constraints and Infrastructure Blockage, as all mean differences were relatively small and non-significant ($p > 0.30$). For Tech-Related Constraints, a significant difference seen between the 18–40 and 60+ age groups (Mean Difference = 0.44636, $p = 0.042$),

showing that respondents aged 60 and above perceive considerably greater technological challenges compared to 18-40 aged retailers. However, the comparison between 41–60 and 60+ small significance (p = 0.096). In Customer Readiness Issues, a large pair wise difference was observed between the 18-40 and 41-60 groups (Mean Difference = 0.13889, p = 0.013), indicating the perception that middle-aged customers (41-60) have more issues in customer readiness as compared to younger customers.. No other age-group comparisons were statistically significant for this construct. Overall, significant difference across age appear only for Tech-Related Constraints and Customer Readiness issues, indicating that older and middle-aged retailers perceive more challenges than younger groups.

6.6.4 Educational Qualifications Wise Analysis

This section deals to check whether there is any influence of educational background of retailers on acceptance of challenges. ANOVA test is conducted to understand the perceptive of retailers.

H1: There is a significant difference in the perception of operational and strategic challenges in implementing Immersive Commerce across the educational qualifications of the respondents.

Table 6.8

Educational Qualifications Hypotheses on Challenges

Hypothesis No.	Hypothesis
H1a	There is a significant difference in educational qualifications of retailers and their perception of financial constraints in Immersive Commerce.
H1b	There is a significant in educational qualifications of retailers and their perception of Tech-related constraints in Immersive Commerce.
H1c	There is a significant difference in educational qualifications of retailers and their perception of Infrastructure Blockage in Immersive Commerce.
H1d	There is a significant difference in educational qualifications of retailers and their perception of Consumer Readiness Issue in Immersive Commerce.

Table 6.9

ANOVA table showing Educational Qualifications with Challenges

Construct	Educational Qualification	N	Mean	SD	F-value	p-value	Remarks
Financial Constraints	School/Matriculation	5	2.05	0.32596	0.947	0.451	Not Significant
	Plus Two/Diploma	4	2	0.70711			
	Degree	35	2.2929	0.4944			
	Masters	118	2.3771	0.54277			
	Professional	221	2.3156	0.54948			
	PhD	7	2.1429	0.705			
Tech-Related Constraints	School/Matriculation	5	2.2	0.73739	1.625	0.152	Not Significant
	Plus Two/Diploma	4	2.8125	0.375			
	Degree	35	2.4214	0.43628			
	Masters	118	2.3581	0.54152			
	Professional	221	2.2568	0.55847			
	PhD	7	2.2857	0.52893			
Infrastructure Blockage	School/Matriculation	5	2.4	0.65192	0.898	0.482	Not Significant
	Plus Two/Diploma	4	2.0625	0.125			
	Degree	35	2.3	0.57777			
	Masters	118	2.3432	0.48459			
	Professional	221	2.4219	0.5199			
	PhD	7	2.4286	0.53452			
Customer Readiness Issue	School/Matriculation	5	1.35	0.48734	6.604	0.000	Significant
	Plus Two/Diploma	4	1.375	0.43301			
	Degree	35	1.7357	0.35842			
	Masters	118	1.2987	0.44248			
	Professional	221	1.2952	0.43392			
	PhD	7	1.4286	0.53452			

Source: Primary Data

The results of the ANOVA in educational qualifications show that the mean scores and statistical significance of each of the constructs is different. In the case of Financial Constraints, the means range between 2.00 (Plus Two/Diploma) and 2.38 (Masters) and the total means score is 2.3224, SD =0.545, the ANOVA result = F = 0.947, p =.451 and the result of the ANOVA test does not show any significant

difference between the groups. The Tech-Related Constraints exhibit the mean range between 2.20 (School level) and 2.81 (Plus Two/Diploma), and therefore, the total mean of 2.31 (SD =.54626) and again there is no significant effect of educational category as seen in the ANOVA results (F = 1.625, p =.152). On the same way, Infrastructure Blockage has means of 2.06 (Plus Two/Diploma) to 2.43 (PhD) with a total mean of 2.3833 (SD = .51442) and the ANOVA result (F = 0.898, p =.482) indicates that there are no significant group differences. But in Customer Readiness Issue, where the mean scores are between 1.29 (Masters and Professional Qualifications) to 1.74 (Degree holders) with a mean of 1.3397 (SD =.44810) in total. The result of the ANOVA (F = 6.604, p =.000) shows that the difference between the levels of education is statistically significant. This implies that although the issue of operational and strategic challenges is equally felt in both types of educational qualifications, the perceptions of customer readiness towards Immersive Commerce dissimilar in the way that the degree holders have greater concerns of consumer readiness and the professionally qualified retailers have fewer concerns.

Table 6.10

Multiple Comparisons of Educational Qualifications and Challenges

Constructs	Educational Qualification (I)	Educational Qualification (J)	Mean Difference (I-J)	Std. Error	Sig.
Financial Constraints	School or Matriculation Level	Plus Two/Diploma Level	.05000	.36568	1.000
		Degree Level	-.24286	.26062	.938
		Masters Level	-.32712	.24890	.777
		Professional Qualification	-.26561	.24653	.890
		PhD	-.09286	.31919	1.000
	Plus Two/Diploma Level	School or Matriculation Level	-.05000	.36568	1.000
		Degree Level	-.29286	.28772	.912
		Masters Level	-.37712	.27714	.750
		Professional Qualification	-.31561	.27502	.861

		PhD	-.14286	.34167	.998
	Degree Level	School or Matriculation Level	.24286	.26062	.938
		Plus Two/Diploma Level	.29286	.28772	.912
		Masters Level	-.08426	.10492	.967
		Professional Qualification	-.02275	.09917	1.000
		PhD	.15000	.22570	.986
	Masters Level	School or Matriculation Level	.32712	.24890	.777
		Plus Two/Diploma Level	.37712	.27714	.750
		Degree Level	.08426	.10492	.967
		Professional Qualification	.06151	.06215	.921
		PhD	.23426	.21206	.879
	Professional Qualification	School or Matriculation Level	.26561	.24653	.890
		Plus Two/Diploma Level	.31561	.27502	.861
		Degree Level	.02275	.09917	1.000
		Masters Level	-.06151	.06215	.921
		PhD	.17275	.20928	.963
	PhD	School or Matriculation Level	.09286	.31919	1.000
		Plus Two/Diploma Level	.14286	.34167	.998
		Degree Level	-.15000	.22570	.986
		Masters Level	-.23426	.21206	.879
		Professional Qualification	-.17275	.20928	.963
Tech-Related Constraints	School or Matriculation Level	Plus Two/Diploma Level	-.61250	.36498	.547
		Degree Level	-.22143	.26012	.958
		Masters Level	-.15805	.24842	.988

		Professional Qualification	-.05679	.24606	1.000
		PhD	-.08571	.31858	1.000
	Plus Two/Diploma Level	School or Matriculation Level	.61250	.36498	.547
		Degree Level	.39107	.28716	.750
		Masters Level	.45445	.27661	.571
		Professional Qualification	.55571	.27449	.330
		PhD	.52679	.34102	.635
	Degree Level	School or Matriculation Level	.22143	.26012	.958
		Plus Two/Diploma Level	-.39107	.28716	.750
		Masters Level	.06338	.10472	.991
		Professional Qualification	.16464	.09898	.557
		PhD	.13571	.22527	.991
	Masters Level	School or Matriculation Level	.15805	.24842	.988
		Plus Two/Diploma Level	-.45445	.27661	.571
		Degree Level	-.06338	.10472	.991
		Professional Qualification	.10126	.06203	.578
		PhD	.07234	.21165	.999
	Professional Qualification	School or Matriculation Level	.05679	.24606	1.000
		Plus Two/Diploma Level	-.55571	.27449	.330
		Degree Level	-.16464	.09898	.557
		Masters Level	-.10126	.06203	.578
		PhD	-.02893	.20887	1.000
	PhD	School or Matriculation Level	.08571	.31858	1.000
		Plus Two/Diploma Level	-.52679	.34102	.635

		Degree Level	-.13571	.22527	.991
		Masters Level	-.07234	.21165	.999
		Professional Qualification	.02893	.20887	1.000
Infrastructure Blockage	School or Matriculation Level	Plus Two/Diploma Level	.33750	.34531	.925
		Degree Level	.10000	.24610	.999
		Masters Level	.05678	.23503	1.000
		Professional Qualification	-.02195	.23280	1.000
		PhD	-.02857	.30141	1.000
	Plus Two/Diploma Level	School or Matriculation Level	-.33750	.34531	.925
		Degree Level	-.23750	.27169	.952
		Masters Level	-.28072	.26171	.892
		Professional Qualification	-.35945	.25970	.737
		PhD	-.36607	.32264	.867
	Degree Level	School or Matriculation Level	-.10000	.24610	.999
		Plus Two/Diploma Level	.23750	.27169	.952
		Masters Level	-.04322	.09908	.998
		Professional Qualification	-.12195	.09365	.784
		PhD	-.12857	.21313	.991
	Masters Level	School or Matriculation Level	-.05678	.23503	1.000
		Plus Two/Diploma Level	.28072	.26171	.892
		Degree Level	.04322	.09908	.998
		Professional Qualification	-.07873	.05869	.762
		PhD	-.08535	.20025	.998
	Professional Qualification	School or Matriculation Level	.02195	.23280	1.000
		Plus Two/Diploma	.35945	.25970	.737

		Level			
		Degree Level	.12195	.09365	.784
		Masters Level	.07873	.05869	.762
		PhD	-.00663	.19762	1.000
	PhD	School or Matriculation Level	.02857	.30141	1.000
		Plus Two/Diploma Level	.36607	.32264	.867
		Degree Level	.12857	.21313	.991
		Masters Level	.08535	.20025	.998
		Professional Qualification	.00663	.19762	1.000
Customer Readiness Issue	School or Matriculation Level	Plus Two/Diploma Level	-.02500	.29032	1.000
		Degree Level	-.38571	.20691	.426
		Masters Level	.05127	.19761	1.000
		Professional Qualification	.05475	.19572	1.000
		PhD	-.07857	.25341	1.000
	Plus Two/Diploma Level	School or Matriculation Level	.02500	.29032	1.000
		Degree Level	-.36071	.22842	.613
		Masters Level	.07627	.22003	.999
		Professional Qualification	.07975	.21834	.999
		PhD	-.05357	.27126	1.000
	Degree Level	School or Matriculation Level	.38571	.20691	.426
		Plus Two/Diploma Level	.36071	.22842	.613
		Masters Level	.43699*	.08330	.000
		Professional Qualification	.44047*	.07873	.000
		PhD	.30714	.17919	.523
	Masters Level	School or Matriculation Level	-.05127	.19761	1.000
		Plus Two/Diploma	-.07627	.22003	.999

		Level			
		Degree Level	-.43699*	.08330	.000
		Professional Qualification	.00348	.04934	1.000
		PhD	-.12984	.16836	.972
	Professional Qualification	School or Matriculation Level	-.05475	.19572	1.000
		Plus Two/Diploma Level	-.07975	.21834	.999
		Degree Level	-.44047*	.07873	.000
		Masters Level	-.00348	.04934	1.000
		PhD	-.13332	.16615	.967
	PhD	School or Matriculation Level	.07857	.25341	1.000
		Plus Two/Diploma Level	.05357	.27126	1.000
		Degree Level	-.30714	.17919	.523
		Masters Level	.12984	.16836	.972
		Professional Qualification	.13332	.16615	.967
*. The mean difference is significant at the 0.05 level.					

Source: Primary Data

The post hoc test through the Tukey HSD analysis gives an insight of numerical differences in the groups of educational qualifications of another construct following the outcome of the ANOVA. In the case of Financial Constraints, all the pair comparisons of the six education categories indicate non significant ($p > .05$) differences in mean, where it can be found that no particular group have any difference with another in viewing financial constraints. In Tech-Related Constraints and Infrastructure Blockage, all the pair wise comparisons are not significant with all the p-values greater than 0.05. This explains that perceptions of tech-related constraints and infrastructural blockage are alike across all the categories of education qualifications and no specific qualification group looks different in its perceptions. Customer Readiness Issue construct does not display the same trend ie., the Tukey HSD has found that there are significant differences in pair-wise

between Degree holders and Masters-level respondents (Mean Difference = .43699, p =.000) and Degree holders and Professional Qualification holders (Mean Difference =.44047, p =.000). These high differences imply that Degree holders have a much higher customer readiness concern than holders of Masters or Professional qualification. The rest of the comparisons are non-significant, i.e. only the Degree-level retailers are significantly different with these two groups. Overall, the post hoc findings support the idea that the educational level has no impact on operational or technological issues but does affect the impressions of customer readiness to Immersive Commerce technologies.

6.6.5 Year of Experience Wise Analysis

This section deals to check whether there is any influence of previous experience of retailers on acceptance of challenges. ANOVA test is conducted to understand the perceptive of retailers.

H1**:** There is a significant difference in the perception of operational and strategic challenges in implementing Immersive Commerce across the Previous experience of retailers

Table 6.11

Year of Experience Hypotheses on Challenges

Hypothesis No.	Hypothesis
H1a	There is a significant difference in Previous experience of retailers and their perception of financial constraints in Immersive Commerce.
H1b	There is a significant in Previous experience of retailers and their perception of Tech-related constraints in Immersive Commerce.
H1c	There is a significant difference in Previous experience of retailers and their perception of Infrastructure Blockage in Immersive Commerce.
H1d	There is a significant difference in Previous experience of retailers and their perception of Consumer Readiness Issue in Immersive Commerce.

Table 6.12

ANOVA table showing Year of Experience and Challenges

Construct	Year of Experience Category	N	Mean	SD	F-value	p-value	Remarks
Financial Constraints	Less than 1 year	11	2.1136	0.6742	0.692	0.598	Not Significant
	1–3 years	50	2.375	0.54457			
	4–7 years	162	2.2963	0.55952			
	8–10 years	151	2.3477	0.52992			
	10 years & Above	16	2.3281	0.45386			
Tech-related Constraints	Less than 1 year	11	2.25	0.46098	1.428	0.224	Not Significant
	1–3 years	50	2.385	0.50308			
	4–7 years	162	2.2469	0.5751			
	8–10 years	151	2.3295	0.54035			
	10 years & Above	16	2.5156	0.43271			
Infrastructure Blockage	Less than 1 year	11	2.7727	0.37839	1.746	0.139	Not Significant
	1–3 years	50	2.39	0.49011			
	4–7 years	162	2.3519	0.50965			
	8–10 years	151	2.3874	0.52416			
	10 years & Above	16	2.375	0.57009			
Customer Readiness Issue	Less than 1 year	11	1.3182	0.44848	1.947	0.102	Not Significant
	1–3 years	50	1.3	0.4432			
	4–7 years	162	1.3102	0.42878			
	8–10 years	151	1.4073	0.47312			
	10 years & Above	16	1.1406	0.34118			

Source: Primary Data

The years of the retail experience of the respondents played a significant role in the four major challenge related constructs, which constitute the Implementation of Immersive Commerce- Financial Constraints, Tech-Related Constraints, Infrastructure Blockage, and Customer Readiness Issues. The result of the one-way

ANOVA indicates that Financial Constraints is no significance between the categories of experience as the F-value is 0.692 with a p-value of 0.598, which is more than the value of 0.05. This implies that there were no differences in perceptions of retailers who had less than one year and those who had more than ten years of experience in the financial constraints. It is also similar in the case of Tech-Related Constraints where the ANOVA yielded an F-value of 1.428 and a p-value of 0.224, which is greater than the 0.05, indicating that experience differences do not have a significant role in the perception of retailers towards tech-related constraints in Immersive Commerce features. The another construct, Infrastructure Blockage, also failed to prove a statistically significant difference across experience with an F-value 1.746 with a p-value 0.139 indicating crucial infrastructure issues - across experience groups. Lastly, Customer Readiness Issues had the F-value of 1.947 and p-value of 0.102 that is slightly near the 0.05 mark but not yet significant. The result shows that experience variation does not have a significant impact on the perceptions of the retailers with respect to customer awareness, digital literacy, infrastructure adaptiveness and readiness to embrace Immersive Commerce. On the whole, the p-values of all the constructs exceed 0.05, and the given evidence helps conclude that the number of years of experience has no statistically significant effect on the perception of the retailers towards the challenges in the Implementation of the Immersive Commerce.

6.6.6 Position/Designation Wise Analysis

This section deals to check whether there is any influence of Designation of retailers on acceptance of challenges. ANOVA test is conducted to understand the perceptive of retailers.

H1**:** There is a significant difference in the perception of operational and strategic challenges in implementing Immersive Commerce across the Designation of retailers.

Table 6.13

Position/Designation Hypotheses on Challenges

Hypothesis No.	Hypothesis
H1a	There is a significant difference in Designation of retailers and their perception of financial constraints in Immersive Commerce.
H1b	There is a significant in Designation of retailers and their perception of Tech-related constraints in Immersive Commerce.
H1c	There is a significant difference in Designation of retailers and their perception of Infrastructure Blockage in Immersive Commerce.
H1d	There is a significant difference in Designation of retailers and their perception of Consumer Readiness Issue in Immersive Commerce.

Table 6.14

ANOVA table showing Position/Designation and Challenges

Construct	Position/ Designation Category	N	Mean	SD	F-value	p-value	Remarks
Financial Constraints	Franchise Partner	74	2.277	0.5667	0.723	0.539	Not Significant
	Manager	109	2.3853	0.5177			
	Owner	175	2.3071	0.5528			
	Others	32	2.2969	0.5479			
Tech-Related Constraints	Franchise Partner	74	2.3007	0.5185	0.363	0.78	Not Significant
	Manager	109	2.3326	0.5058			
	Owner	175	2.3114	0.5837			
	Others	32	2.2188	0.5453			
Infrastructure Blockage	Franchise Partner	74	2.3818	0.5335	1.141	0.332	Not Significant
	Manager	109	2.445	0.4582			
	Owner	175	2.3357	0.5445			
	Others	32	2.4375	0.4752			
Customer Readiness Issue	Franchise Partner	74	1.2534	0.4169	2.762	0.042	Significant
	Manager	109	1.3486	0.4277			
	Owner	175	1.3371	0.4354			
	Others	32	1.5234	0.5969			

Source: Primary Data

Results from one-way ANOVA shows that retailers from different position/designation categories, such as Franchise Partners, Managers, Owners, and Others, do not differ significantly in their perception of most constructs related to challenges. In the case of Financial Constraints, the mean scores ranged between 2.27 and 2.38, and one-way ANOVA showed no significant difference with F = 0.723 (p = 0.539). The mean values of Tech-Related Constraints also varied ranging between 2.22 and 2.33, and the test revealed no significant difference with F = 0.363 (p = 0.780). For Infrastructure Blockage, the mean score varied between 2.33 and 2.45, and one-way ANOVA showed no significant difference across designations with F = 1.141 (p = 0.332). On the contrary, Customer Readiness Issues showed a significant difference where mean values range between 1.25 and 1.52 and ANOVA result is statistically significant with F = 2.762 (p = 0.042). This suggests that customer readiness perception varies with the position of the retailer, while the perceptions regarding financial, technological, and infrastructural challenges remain the same across all categories of designation.

Table 6.15

Multiple Comparisons between Position/Designation and Challenges

Constructs	Position (I)	Position(J)	Mean Difference (I-J)	Std. Error	Sig.
Financial Constraints	Franchise Partner	Manager	-.10829	.08217	.552
		Owner	-.03012	.07564	.979
		Others	-.01985	.11542	.998
	Manager	Franchise Partner	.10829	.08217	.552
		Owner	.07818	.06656	.643
		Others	.08845	.10968	.851
	Owner	Franchise Partner	.03012	.07564	.979
		Manager	-.07818	.06656	.643
		Others	.01027	.10488	1.000
	Others	Franchise Partner	.01985	.11542	.998

		Manager	-.08845	.10968	.851
		Owner	-.01027	.10488	1.000
Tech-Related Constraints	Franchise Partner	Manager	-.03189	.08248	.980
		Owner	-.01075	.07593	.999
		Others	.08193	.11586	.894
	Manager	Franchise Partner	.03189	.08248	.980
		Owner	.02114	.06682	.989
		Others	.11382	.11010	.730
	Owner	Franchise Partner	.01075	.07593	.999
		Manager	-.02114	.06682	.989
		Others	.09268	.10528	.815
	Others	Franchise Partner	-.08193	.11586	.894
		Manager	-.11382	.11010	.730
		Owner	-.09268	.10528	.815
Infrastructure Blockage	Franchise Partner	Manager	-.06320	.07744	.847
		Owner	.04604	.07129	.917
		Others	-.05574	.10878	.956
	Manager	Franchise Partner	.06320	.07744	.847
		Owner	.10924	.06274	.304
		Others	.00745	.10337	1.000
	Owner	Franchise Partner	-.04604	.07129	.917
		Manager	-.10924	.06274	.304
		Others	-.10179	.09885	.732
	Others	Franchise Partner	.05574	.10878	.956
		Manager	-.00745	.10337	1.000
		Owner	.10179	.09885	.732
Customer Readiness Issue	Franchise Partner	Manager	-.09525	.06704	.487
		Owner	-.08376	.06172	.527
		Others	-.27006*	.09417	.023
	Manager	Franchise Partner	.09525	.06704	.487
		Owner	.01148	.05431	.997
		Others	-.17481	.08949	.208
	Owner	Franchise	.08376	.06172	.527

		Partner			
		Manager	-.01148	.05431	.997
		Others	-.18629	.08557	.131
	Others	Franchise Partner	.27006*	.09417	.023
		Manager	.17481	.08949	.208
		Owner	.18629	.08557	.131
*. The mean difference is significant at the 0.05 level.					

Source: Primary Data

The Tukey HSD post hoc analysis for Financial Constraints, Tech-Related Constraints, and Infrastructure Blockage shows that none of the pair wise comparisons involving Franchise Partners, Managers, Owners, and Others yielded a statistical difference. All p values were greater than 0.30, further confirming the ANOVA result of relative homogeneity in perceptions across designations in the case of these constructs. In the case of Customer Readiness Issues, there was only one statistically significant pair wise difference: Franchise Partners and Others differed at the significance level with "Others" reporting a significantly greater concern about customer readiness. Mean Difference = 0.27006, p = 0.023. Other paired comparisons for this construct were not statistically significant, so this is the only meaningful variation between Franchisee Partners and Others. This further means that compared to Franchisee Partners, "Others" feel problems relating to the customers' digital literacy, awareness, and readiness for Immersive Commerce are much more serious, while all other designation groups have similar perceptions.

6.6.7 Retail format Wise Analysis

This section deals to check whether there is any influence of Firm's Retail Format on acceptance of challenges. ANOVA test is conducted to understand the perceptive of retailers.

H1: There is a significant difference in the perception of operational and strategic challenges in implementing Immersive Commerce across the Firm's Retail Format.

Table 6.16

Retail Forma Hypothesis on Challenges

Hypothesis No.	Hypothesis
H1a	There is a significant difference in Firm's Retail Format and the Retailer's perception of financial constraints in Immersive Commerce.
H1b	There is a significant difference in Firm's Retail Format and the Retailer's perception of Tech-related constraints in Immersive Commerce.
H1c	There is a significant difference in Firm's Retail Format and the Retailer's perception of Infrastructure Blockage in Immersive Commerce.
H1d	There is a significant difference in Firm's Retail Format and the Retailer's perception of Consumer Readiness Issue in Immersive Commerce.

Table 6.17

ANOVA table showing Retail format and Challenges

Construct	Retail Format	N	Mean	SD	F-value	p-value	Remarks
Financial Constraints	Brick & Mortar	18	2.36	0.49	0.208	0.812	No significant
	E-Commerce/ M-Commerce	144	2.3	0.57			
	Omni Channel	228	2.33	0.53			
Tech-Related Constraints	Brick & Mortar	18	2.36	0.67	0.102	0.903	No significant
	E-Commerce/ M-Commerce	144	2.31	0.56			
	Omni Channel	228	2.3	0.53			
Infrastructure Blockage	Brick & Mortar	18	2.57	0.47	1.254	0.286	No significant
	E-Commerce/M-Commerce	144	2.37	0.56			
	Omni Channel	228	2.38	0.49			
Customer Readiness Issues	Brick & Mortar	18	1.25	0.36	0.378	0.685	No significant
	E-Commerce/ M-Commerce	144	1.35	0.48			
	Omni Channel	228	1.34	0.43			

Source: Primary Data

The ANOVA results shows that retail format (Brick & Mortar, E-Commerce/M-Commerce, Omni-Channel) does not significantly influence retailers' perceptions of the four challenge constructs related with implementing Immersive Commerce.

For Financial Constraints ($F = 0.208$, $p = 0.812$), Tech-Related Constraints ($F = 0.102$, $p = 0.903$), Infrastructure Blockage ($F = 1.254$, $p = 0.286$), and Customer Readiness Issues ($F = 0.378$, $p = 0.685$), all p-values were far exceed to 0.05, indicating no statistically significant differences among the three retail formats.

This means that retailers across traditional, online, and Omni-channel formats similar levels of challenges when adopting Immersive Commerce. Post-hoc tests would also not show significant pair-wise differences because the overall ANOVA was non-significant. Hence the hypotheses are rejected.

6.2.8 Annual Turnover Wise Analysis

This section deals to check whether there is any effect of Firm's Annual Turnover on challenges. ANOVA test is conducted to understand the perceptive of retailers

H1: There is a significant difference in the perception of operational and strategic challenges in implementing Immersive Commerce across the Firm's Retail Format.

Table 6.18

Annual Turnover Hypothesis on Challenges

Hypothesis No.	Hypothesis
H1a	There is a significant difference in Firm's Annual Turnover and the Retailer's perception of financial constraints in Immersive Commerce.
H1b	There is a significant difference in Firm's Annual Turnover and the Retailer's perception of Tech-related constraints in Immersive Commerce.
H1c	There is a significant difference in Firm's Annual Turnover and the Retailer's perception of Infrastructure Blockage in Immersive Commerce.
H1d	There is a significant difference in Firm's Annual Turnover and the Retailer's perception of Consumer Readiness Issue in Immersive Commerce.

Table 6.19

ANOVA table showing Annual turnover and challenges

Construct	Annual Turnover Category	N	Mean	SD	F-value	p-value	Remarks
Financial Constraints	10 Crore and Above	70	2.2893	0.54	0.624	0.646	Not significant
	5 Crore – 10 Crore	89	2.3624	0.55			
	1 Crore – 5 Crore	131	2.3092	0.54			
	50 Lakhs – 1 Crore	79	2.3639	0.54			
	Less than 50 Lakhs	21	2.1905	0.51			
Tech-Related Constraints	10 Crore and Above	70	2.3107	0.54	0.152	0.962	Not significant
	5 Crore – 10 Crore	89	2.3258	0.56			
	1 Crore – 5 Crore	131	2.3168	0.58			
	50 Lakhs – 1 Crore	79	2.2658	0.50			
	Less than 50 Lakhs	21	2.3214	0.43			
Infrastructure Blockage	10 Crore and Above	70	2.4107	0.50	1.707	0.148	Not significant
	5 Crore – 10 Crore	89	2.264	0.53			
	1 Crore – 5 Crore	131	2.4103	0.49			
	50 Lakhs – 1 Crore	79	2.4177	0.52			
	Less than 50 Lakhs	21	2.5	0.48			
Customer Readiness Issue	10 Crore and Above	70	1.3893	0.45	0.662	0.619	Not significant
	5 Crore – 10 Crore	89	1.2865	0.42			
	1 Crore – 5 Crore	131	1.3435	0.46			
	50 Lakhs – 1 Crore	79	1.3639	0.45			
	Less than 50 Lakhs	21	1.2857	0.38			

Source: Primary Data

The ANOVA results reveal that firm's annual turnover does not have any significant effect on how retailers perceive the challenges associated with implementing Immersive Commerce. For all four constructs viz., Financial Constraints (p = .646), Tech-Related Constraints (p = .962), Infrastructure Blockage (p = .148), and Customer Readiness Issues (p = .619), the p-values are above 0.05, indicating that the differences in mean scores across turnover categories (from less than ₹50 lakhs to above ₹10 crores) are statistically insignificant. This means that both small-scale and large-scale retailers face challenges when adopting Immersive Commerce

technologies and the annual turnover does not meaningfully alter their perceptions of financial, technological, infrastructural, or consumer readiness barriers. Hence all the hypotheses are rejected.

6.6.9 Location Wise Analysis

This section deals to check whether there is any effect of Firm's Location on challenges. ANOVA test is conducted to understand the perceptive of retailers

H1: There is a significant difference in the perception of operational and strategic challenges in implementing Immersive Commerce across the Firm's Location

Table 6.20

Location Hypothesis on Challenges

Hypothesis No.	Hypothesis
H1a	There is a significant difference in Firm's Location and the Retailer's perception of financial constraints in Immersive Commerce.
H1b	There is a significant difference in Firm's Location and the Retailer's perception of Tech-related constraints in Immersive Commerce.
H1c	There is a significant difference in Firm's Location and the Retailer's perception of Infrastructure Blockage in Immersive Commerce.
H1d	There is a significant difference in Firm's Location and the Retailer's perception of Consumer Readiness Issue in Immersive Commerce.

Table 6.21

ANOVA Table showing Location and Challenges

Construct	Location	N	Mean	SD	F-value	p-value	Remarks
Financial Constraints	Bengaluru	52	2.274	0.5361	0.616	0.816	Not Significant
	Mumbai	36	2.2292	0.5119			
	Delhi NCR	43	2.2674	0.5784			
	Hyderabad	31	2.3387	0.6243			

	Pune	22	2.3068	0.577			
	Chennai	27	2.287	0.5034			
	Ahmedabad	27	2.4537	0.5191			
	Indore	18	2.5278	0.3824			
	Jaipur	24	2.3646	0.4944			
	Kochi/Trivandrum	54	2.2963	0.5789			
	Coimbatore	45	2.35	0.5873			
	Bhubaneswar	11	2.4091	0.4779			
Tech-Related Constraints	Bengaluru	52	2.1635	0.5728	1.317	0.212	Not Significant
	Mumbai	36	2.4028	0.4403			
	Delhi NCR	43	2.2209	0.5351			
	Hyderabad	31	2.3306	0.5139			
	Pune	22	2.0795	0.5895			
	Chennai	27	2.3519	0.6134			
	Ahmedabad	27	2.3889	0.4511			
	Indore	18	2.5278	0.6117			
	Jaipur	24	2.3229	0.5491			
	Kochi/Trivandrum	54	2.338	0.5498			
	Coimbatore	45	2.3778	0.532			
	Bhubaneswar	11	2.2727	0.6467			
Infrastructure Blockage	Bengaluru	52	2.4279	0.5153	0.834	0.606	Not Significant
	Mumbai	36	2.4028	0.464			
	Delhi NCR	43	2.3721	0.5466			
	Hyderabad	31	2.4113	0.5422			
	Pune	22	2.3636	0.516			
	Chennai	27	2.5	0.4102			
	Ahmedabad	27	2.1481	0.6015			
	Indore	18	2.3194	0.5272			
	Jaipur	24	2.3125	0.3987			
	Kochi/Trivandrum	54	2.375	0.5337			
	Coimbatore	45	2.45	0.5554			
	Bhubaneswar	11	2.4318	0.4045			
Customer Readiness Issue	Bengaluru	52	1.4087	0.4826	1.074	0.381	Not Significant
	Mumbai	36	1.5	0.5071			
	Delhi NCR	43	1.2965	0.4235			
	Hyderabad	31	1.3226	0.4193			
	Pune	22	1.25	0.4226			
	Chennai	27	1.287	0.4025			
	Ahmedabad	27	1.2593	0.4188			
	Indore	18	1.3611	0.4306			

	Jaipur	24	1.3438	0.4412			
	Kochi/Trivandrum	54	1.3009	0.4408			
	Coimbatore	45	1.3944	0.4928			
	Bhubaneswar	11	1.1364	0.3034			

Source: Primary Data

The one-way ANOVA results demonstrates that location does not significantly influence on retailers' perceptions of challenges in implementing Immersive Commerce across all four constructs, Financial Constraints ($F = 0.616$, $p = 0.816$), Tech-Related Constraints ($F = 1.317$, $p = 0.212$), Infrastructure Blockage ($F = 0.834$, $p = 0.606$), and Customer Readiness Issues ($F = 1.074$, $p = 0.381$). The variations in mean scores are visible across cities such as Bengaluru, Mumbai, Delhi NCR, Hyderabad, Pune, Chennai, Ahmedabad, Indore, Jaipur, Kochi/Trivandrum, Coimbatore, and Bhubaneswar, these differences is caused by normal sampling fluctuations rather than actual differences in perception, as evidenced by the relatively insignificant differences. This implies that retailers in major Indian metropolitan areas encounter the limitations of Immersive Commerce technologies in a highly homogeneous and consistent manner. The company's opinions regarding financial, technological, and infrastructure constraints as well as customer readiness issues are the same whether it is based in a more technologically advanced city like Bengaluru or a new retail hotspot like Bhubaneswar or Indore. According to the findings, Immersive Commerce challenges are systemic and national in nature rather than geographically concentrated. This suggests that policy interventions, technology support systems, and capability-building initiatives should be designed at a national or industry-wide level instead of focusing on specific regions.

6.6.9 Category of Retail Wise Analysis

This section deals to check whether there is any effect of Category of Retail on challenges. ANOVA test is conducted to understand the perceptive of retailers

H1: There is a significant difference in the perception of operational and strategic challenges in implementing Immersive Commerce across different category of retail.

Table 6.22

Category of Retail Hypothesis on Challenges

Hypothesis No.	Hypothesis
H1a	There is a significant effect of Category of Retail on Retailer's perception of financial constraints in Immersive Commerce.
H1b	There is a significant effect of Category of Retail on Retailer's perception of Tech-related constraints in Immersive Commerce.
H1c	There is a significant effect of Category of Retail on Retailer's perception of Infrastructure Blockage in Immersive Commerce.
H1d	There is a significant effect of Category of Retail on Retailer's perception of Consumer Readiness Issue in Immersive Commerce.

Table 6.23

ANOVA table showing Category of Retail and Challenges

Construct	Category of Retail	N	Mean	SD	F-value	p-value	Remarks
Financial Constraints	Apparels & Fashion	105	2.307	0.537	2.29	0.05	Significant
	Electronics & Gadgets	36	2.396	0.468			
	Grocery & FMCG	97	2.351	0.555			
	Furniture & Home Décor	82	2.174	0.636			
	Beauty & Health Care	24	2.521	0.403			
	Others	46	2.402	0.433			
Tech-Related Constraints	Apparels & Fashion	105	2.25	0.495	0.58	0.72	Not significant
	Electronics & Gadgets	36	2.368	0.519			
	Grocery & FMCG	97	2.309	0.562			
	Furniture & Home Décor	82	2.293	0.606			

	Beauty & Health Care	24	2.396	0.516			
	Others	46	2.37	0.56			
Infrastructure Blockage	Apparels & Fashion	105	2.324	0.502	1.41	0.22	Not significant
	Electronics & Gadgets	36	2.465	0.452			
	Grocery & FMCG	97	2.379	0.531			
	Furniture & Home Décor	82	2.372	0.559			
	Beauty & Health Care	24	2.292	0.458			
	Others	46	2.533	0.485			
Customer Readiness Issues	Apparels & Fashion	105	1.343	0.438	1.03	0.4	Not significant
	Electronics & Gadgets	36	1.285	0.444			
	Grocery & FMCG	97	1.338	0.458			
	Furniture & Home Décor	82	1.366	0.441			
	Beauty & Health Care	24	1.49	0.451			
	Others	46	1.255	0.464			

Source: Primary Data

The results of the analysis of variance indicate that various retail categories encounter different levels of challenges when it deals with implementing Immersive Commerce. The cost of implementing Immersive technologies varies by category, with Furniture & Home Decor reporting the lowest perceived financial constraints and Beauty & Health retailers reporting the highest. Of the four concepts, only Financial Constraints shows a statistically significant difference across categories ($F = 2.290$, $p = 0.045$). However, there are no appreciable differences between the six retail categories in terms of Infrastructure Blockage ($p = 0.220$), Customer Readiness Issues ($p = 0.400$), or Tech-Related Constraints ($p = 0.720$). This implies that whether a retailer is in the grocery, electronics, clothing, beauty, home décor, or other industries, technological limitations, infrastructure challenges, and customer

readiness issues remain essentially the same. Although there is some variance among the group means values, this is not statistically significant. With financial viability emerging as the only category-sensitive challenge and the majority of operational and consumer-related issues being consistent across retail domains, the overall findings demonstrate that the cost of implementing Immersive Commerce impacts some retail sectors more than others.

Table 6.24

Multiple Comparison of Category of Retail with Challenges

Constructs	Category of Retail (I)	Category of Retail (J)	Mean Difference (I-J)	Std. Error	Sig.
Financial Constraints	Apparels and Fashions	Electronics and Gadgets	-.08869	.10439	.958
		Grocery and FMCG	-.04337	.07612	.993
		Furniture and Home Decor	.13336	.07965	.550
		Beauty and Health Care	-.21369	.12228	.501
		Others	-.09503	.09556	.920
	Electronics and Gadgets	Apparels and Fashions	.08869	.10439	.958
		Grocery and FMCG	.04532	.10548	.998
		Furniture and Home Decor	.22205	.10806	.313
		Beauty and Health Care	-.12500	.14243	.952
		Others	-.00634	.12027	1.000
	Grocery and FMCG	Apparels and Fashions	.04337	.07612	.993
		Electronics and Gadgets	-.04532	.10548	.998
		Furniture and Home Decor	.17673	.08108	.250
		Beauty and Health Care	-.17032	.12322	.738

		Others	-.05166	.09676	.995
	Furniture and Home Decor	Apparels and Fashions	-.13336	.07965	.550
		Electronics and Gadgets	-.22205	.10806	.313
		Grocery and FMCG	-.17673	.08108	.250
		Beauty and Health Care	-.34705	.12543	.065
		Others	-.22839	.09956	.199
	Beauty and Health Care	Apparels and Fashions	.21369	.12228	.501
		Electronics and Gadgets	.12500	.14243	.952
		Grocery and FMCG	.17032	.12322	.738
		Furniture and Home Decor	.34705	.12543	.065
		Others	.11866	.13609	.953
	Others	Apparels and Fashions	.09503	.09556	.920
		Electronics and Gadgets	.00634	.12027	1.000
		Grocery and FMCG	.05166	.09676	.995
		Furniture and Home Decor	.22839	.09956	.199
		Beauty and Health Care	-.11866	.13609	.953
Tech-Related Constraints	Apparels and Fashions	Electronics and Gadgets	-.11806	.10579	.875
		Grocery and FMCG	-.05928	.07714	.973
		Furniture and Home Decor	-.04268	.08073	.995
		Beauty and Health Care	-.14583	.12393	.848
		Others	-.11957	.09685	.820
	Electronics and Gadgets	Apparels and Fashions	.11806	.10579	.875
		Grocery and FMCG	.05878	.10690	.994

		Furniture and Home Decor	.07537	.10951	.983
		Beauty and Health Care	-.02778	.14435	1.000
		Others	-.00151	.12189	1.000
	Grocery and FMCG	Apparels and Fashions	.05928	.07714	.973
		Electronics and Gadgets	-.05878	.10690	.994
		Furniture and Home Decor	.01660	.08217	1.000
		Beauty and Health Care	-.08655	.12488	.983
		Others	-.06029	.09806	.990
	Furniture and Home Decor	Apparels and Fashions	.04268	.08073	.995
		Electronics and Gadgets	-.07537	.10951	.983
		Grocery and FMCG	-.01660	.08217	1.000
		Beauty and Health Care	-.10315	.12712	.965
		Others	-.07688	.10090	.974
	Beauty and Health Care	Apparels and Fashions	.14583	.12393	.848
		Electronics and Gadgets	.02778	.14435	1.000
		Grocery and FMCG	.08655	.12488	.983
		Furniture and Home Decor	.10315	.12712	.965
		Others	.02627	.13793	1.000
	Others	Apparels and Fashions	.11957	.09685	.820
		Electronics and Gadgets	.00151	.12189	1.000
		Grocery and FMCG	.06029	.09806	.990
		Furniture and Home Decor	.07688	.10090	.974
		Beauty and Health Care	-.02627	.13793	1.000

Infrastructure Blockage	Apparels and Fashions	Electronics and Gadgets	-.14147	.09909	.710
		Grocery and FMCG	-.05506	.07226	.974
		Furniture and Home Decor	-.04814	.07561	.988
		Beauty and Health Care	.03214	.11609	1.000
		Others	-.20880	.09072	.196
	Electronics and Gadgets	Apparels and Fashions	.14147	.09909	.710
		Grocery and FMCG	.08641	.10013	.955
		Furniture and Home Decor	.09333	.10258	.944
		Beauty and Health Care	.17361	.13521	.794
		Others	-.06733	.11417	.992
	Grocery and FMCG	Apparels and Fashions	.05506	.07226	.974
		Electronics and Gadgets	-.08641	.10013	.955
		Furniture and Home Decor	.00691	.07697	1.000
		Beauty and Health Care	.08720	.11697	.976
		Others	-.15374	.09185	.550
	Furniture and Home Decor	Apparels and Fashions	.04814	.07561	.988
		Electronics and Gadgets	-.09333	.10258	.944
		Grocery and FMCG	-.00691	.07697	1.000
		Beauty and Health Care	.08028	.11908	.985
		Others	-.16066	.09452	.533
	Beauty and Health Care	Apparels and Fashions	-.03214	.11609	1.000
		Electronics and Gadgets	-.17361	.13521	.794
		Grocery and FMCG	-.08720	.11697	.976

		Furniture and Home Decor	-.08028	.11908	.985
		Others	-.24094	.12920	.426
	Others	Apparels and Fashions	.20880	.09072	.196
		Electronics and Gadgets	.06733	.11417	.992
		Grocery and FMCG	.15374	.09185	.550
		Furniture and Home Decor	.16066	.09452	.533
		Beauty and Health Care	.24094	.12920	.426
Customer Readiness Issue	Apparels and Fashions	Electronics and Gadgets	.05813	.08653	.985
		Grocery and FMCG	.00523	.06309	1.000
		Furniture and Home Decor	-.02300	.06603	.999
		Beauty and Health Care	-.14673	.10137	.698
		Others	.08742	.07922	.880
	Electronics and Gadgets	Apparels and Fashions	-.05813	.08653	.985
		Grocery and FMCG	-.05291	.08743	.991
		Furniture and Home Decor	-.08113	.08957	.945
		Beauty and Health Care	-.20486	.11806	.509
		Others	.02929	.09969	1.000
	Grocery and FMCG	Apparels and Fashions	-.00523	.06309	1.000
		Electronics and Gadgets	.05291	.08743	.991
		Furniture and Home Decor	-.02822	.06721	.998
		Beauty and Health Care	-.15195	.10214	.672
		Others	.08219	.08020	.909
	Furniture and Home Decor	Apparels and Fashions	.02300	.06603	.999

		Electronics and Gadgets	.08113	.08957	.945
		Grocery and FMCG	.02822	.06721	.998
		Beauty and Health Care	-.12373	.10398	.842
		Others	.11042	.08253	.764
	Beauty and Health Care	Apparels and Fashions	.14673	.10137	.698
		Electronics and Gadgets	.20486	.11806	.509
		Grocery and FMCG	.15195	.10214	.672
		Furniture and Home Decor	.12373	.10398	.842
		Others	.23415	.11281	.302
	Others	Apparels and Fashions	-.08742	.07922	.880
		Electronics and Gadgets	-.02929	.09969	1.000
		Grocery and FMCG	-.08219	.08020	.909
		Furniture and Home Decor	-.11042	.08253	.764
		Beauty and Health Care	-.23415	.11281	.302

Source: Primary Data

Since all p-values are significantly above.05 and all the confidence intervals include zero, the post hoc results indicate that the retail category (Apparel & Fashion, Electronics, Grocery, Furniture, Beauty & Health, Others) fails to produce any statistically significant differences in any of the four challenge-related constructs: Financial Constraints, Tech-Related Constraints, Infrastructure Blockage, and Customer Readiness Issues. Several analyses (e.g., Furniture & Home Decor vs. Beauty & Health Care in Financial Constraints; Beauty & Health Care vs. Furniture in Infrastructure Blockage) show slightly greater mean differences, but none of them reach significance, which suggests that these variations are random not significant. This suggests that retailers have a relatively uniform perception of the difficulties in

implementing Immersive Commerce across all product categories. It doesn't seem like any one retail segment is more or less constrained than the others. The results indicate that Immersive Commerce barriers are widespread and consistent across various categories of products, confirming that retail category has no apparent effect on the difficulties encountered by retailers.

6.7 Effect of Risks and Barriers on Implementation of Immersive Commerce

The retailer, after Implementation of Immersive has encounters a series of risks and barriers that affect the adaptability, feasibility, technical viability and sustainability of Immersive Commerce. The challenges may sometimes lead to Risks and Barriers. Risks related to financial, operational and security issue may arise after the Immersive technology integrations. High cost of Implementation, uncertain return on investment, data sensitivity and privacy issues are some of the instance that hinders the effectiveness of Immersive Commerce. On other hand, barriers or the obstacles also led to the slowdown of Immersive Commerce adoption. Retailers may focuss on consumer related barriers and consumer inclusivity issue as practical strategies for the adoption. In this section the researcher study a comprehensive examination of risks and barriers. This is essential for the contextual and realistic understanding of the effectiveness of Immersive Commerce in Modern Indian Retailing.

6.7.1 Descriptive Statistics of Risks and Barriers

The following table shows the descriptive statistics of risks and barriers

Table 6.25

Descriptive Statistics of Risks and Barriers

Constructs	Factors	N	Mean	SD	Rank
Financial Risks	Investment in Immersive technology carries financial uncertainty.	390	3.66	.598	3
	Immersive Commerce cannot expect enough ROI.	390	3.71	.617	1
	There's a risk of revenue loss due	390	3.70	.633	2

	to poor tech performance.				
	We are cautious about spending due to cost-risk trade-offs.	390	3.70	.617	2
Operational Risks	Technical failures in Immersive systems disrupt operations.	390	3.72	.664	2
	Integration with existing systems is risky.	390	3.69	.635	3
	Immersive features require constant maintenance.	390	3.74	.656	1
	We lack SOPs to handle Immersive tech breakdowns.	390	3.69	.668	3
Security and Privacy Risks	We are concerned about data security in Immersive systems	390	4.40	.490	1
	Cyber threats related to AR/VR are a major concern.	390	4.35	.537	3
	We take steps to ensure data privacy in Immersive environments.	390	4.47	.510	2
	Lack of cyber security standards poses risk to Immersive use.	390	4.40	.491	1
Consumer Inclusivity	Some groups find it hard to access Immersive Commerce	390	4.37	.483	1
	We struggle to make implementation of Immersive technology inclusive for all.	390	4.31	.472	2
	There are accessibility challenges for people with disabilities	390	4.37	.495	1
	Language and cultural barriers reduce inclusivity in Immersive adoption	390	4.34	.485	4
Consumer Barrier	Not all customers have the interest or willingness to use Immersive tools.	390	3.69	.599	2
	Many customers lack the digital skills to engage with Immersive content.	390	3.70	.583	1
	Resistance to change limits Immersive Commerce adoption.	390	3.69	.607	2
	Consumer skepticism about virtual shopping affects usage.	390	3.68	.613	3

Source: Primary Data

Financial risks imply the worries of retailers regarding the risk of economic venture in the technologies of immersive commerce. The mean of the financial risk item is

3.66 to 3.71 with relatively low standard deviations (SD =.598 to.633) indicating that the respondents have the same concern. The highest mean (M = 3.71, SD = +.617) is connected with doubt about the attainment of an adequate ROI, and the next issues are associated with the loss of revenues because of a bad technological performance (M = 3.70, SD = +.633) and trade-offs between costs and risks (M = 3.70, SD = +.617). Such findings suggest that the uncertainties surrounding the financial position are significant restrictions to the eagerness of retailers to invest in immersive commerce programmes.

Operation risks denote the problems of introducing, integrating and supporting immersive commerce systems. The mean score of this construct lies between 3.69 and 3.74 and the standard deviation ranges between 0.635 and 0.668 hence there is moderate high agreement and low variance of response. The systems that have to be constantly maintained (M = 3.74, SD =.656) and disruption of the work due to technical problems is the most worrisome among the retailers (M = 3.72, SD =.664). A major issue is also the presence of risks of integration and the absence of standard operating procedure (M = 3.69, SD =.635-668) that demonstrates that the instability of the functioning is an urgent barrier to its long-term application.

The most significant means score among constructs indicates that security and privacy threat is the primary issue that occurs among retailers. The means are relatively equal (SD =.490 to.537) and the mean values fall within the range of 4.35 to 4.47 which is very much of an agreement. The highest problematic issues are the data security (M 4.40 SD 0.490) and a lack of cyber security norms (M 4.40 SD 0.491), and the proactive privacy measures are also described by the high mean (M 4.47 SD 0.510). These results should be used to emphasize that the fear of cyber attacks and data abuse is one of the main aspects, which reduces the trust in immersive commerce environment.

Consumer inclusiveness is the ability of immersive commerce solutions to accommodate various classes of customers. The mean scores (4.31 to 4.37) and the standard deviation (SD =.472 to.495) are high because it demonstrates that there is a

high degree of consensus among the retailers. The most significant issues are the difficulties with accessibility of disabled individuals (M = 4.37, SD =.495) and the overall problems with ensuring accessibility to all of the customers (M = 4.37, SD =.483). Language and cultural barriers also reduce inclusiveness (M = 4.34, SD =.485) and should mean that unless the design is geared towards inclusiveness, the use of immersive commerce is bound to exclude certain groups of consumers.

The issues of resistance and willingness to adopt immersive commerce are the customer problems, which are consumer barriers. The data on the overall ratings of this construct are consistent to show moderate agreement with the mean scores of 3.68-3.70 and the standard deviations of.583-613. The lack of digital skills of the customers (M = 3.70, SD =.583) is the most significant concern, then there is the resistance to change (M = 3.69, SD =.607) and the constraint of willingness to use immersive tools (M = 3.69, SD =.599). Skepticism of the consumers towards virtual shopping (M = 3.68, SD =.613) is another factor that inhibits the adoption, and it needs to be supplemented by customer education and trust-building.

6.7.2 Gender Wise Analysis

This section deals with Gender wise analysis of retailers' barriers and risks that hinder the Implementation of Immersive Commerce. For this purpose Independent Sample t-test is conducted using IBM SPSS software. The following were the hypotheses formulated to determine the relationship between Gender and Risks and Barriers of implementing Immersive Commerce.

H1**:** There is a significant difference in the perception of risks and barriers in implementing Immersive Commerce between male and female retailers.

Table 6.26

Gender Wise Hypothesis on Risks and Barriers

Hypothesis No.	Hypothesis
H1a	There is a significant difference between male and female retailers in their perception of Financial risks in Immersive Commerce.

H1b	There is a significant difference between male and female retailers in their perception of Operational risks in Immersive Commerce.
H1c	There is a significant difference between male and female retailers in their perception of Security and Privacy risks in Immersive Commerce.
H1d	There is a significant difference between male and female retailers in their perception of Consumer Inclusivity in Immersive Commerce.
H1e	There is a significant difference between male and female retailers in their perception of Consumer Barriers in Immersive Commerce.

Table 6.27

Independent Sample t-test showing gender on Challenges

Construct	Gender	N	Mean	SD	t-value	p-value	Remarks
Financial Risks	Male	252	2.3284	0.55122	1.065	0.287	Not Significant
	Female	138	2.2681	0.50149			
Operational Risks	Male	252	2.3046	0.58428	0.661	0.509	Not Significant
	Female	138	2.2645	0.55102			
Security & Privacy Risks	Male	252	1.6696	0.42488	4.452	0.000	Significant
	Female	138	1.462	0.46786			
Consumer Inclusivity	Male	252	1.619	0.42249	– 2.266	0.024	Significant
	Female	138	1.7174	0.38544			
Consumer Barriers	Male	252	2.3234	0.52295	0.726	0.468	Not Significant
	Female	138	2.2844	0.47683			

Source: Primary Data

According to the independent samples t-test, there is no strong significant difference between the perceptions of financial risks between male and female respondents (t = 1.065, p = 0.287). Males have provided the slightly higher mean score (M = 2.3284) as compared to females (M = 2.2681), but the difference is not statistically significant since the p-value is much higher than 0.05. The similarities in the standard deviations also show that there is a similarity in the perceptions of both groups when it comes to financial risks with regard to Immersive Commerce. So, gender is not significant in influencing the perception of financial risks based on the opinion of the respondents.

In the case of operational risks, there is no important difference between genders (t = 0.661, p = 0.509). The average score of the male respondents (M = 2.3046) is higher than that of the female (M = 2.2645), but it is too small to be considered statistically significant. The standard deviations of both groups are almost the same confirming that the two genders perceive operational issues, which include technological breakdown or a system failure, differently. In this way, perceptions of operational risks are similar among male and female participants.

There is a statistically significant difference in security and privacy risks between male and female respondents (t = 4.452, p = 0.000). The males were significantly higher (M = 1.6696) compared to females (M = 1.4620), and the difference is also relatively high (p-value is highly significant). The difference in the mean of males is rather high, which indicates that men are more sensitive to perceiving the threat of Immersive data-security in Commerce, privacy vulnerabilities, and cyber risks. This may represent an increased awareness or sensitivity of the male participants with respect to the issues of digital security. In general, gender plays a significant role in security and privacy risk perceptions.

There is a gender difference in the construct of consumer inclusivity as females expressed more concerns regarding inclusiveness (t = -2.266, p = 0.024). The mean score of 1.7174 of women respondents was compared to 1.6190 of male respondents . This means that females were more perceived whether Immersive technologies may sufficiently support different users, including those with access or usability disabilities. The t-value is negative which implies a higher female mean than a male mean. These results indicate that gender is a factor to consider when it comes to the inclusivity perceptions regarding Immersive Commerce.

There are no significant differences in consumer barriers between male and female respondents (t = 0.726, p = 0.468). Men were rated slightly higher (M = 2.3234) than women (M = 2.2844), but this value is not statistically significant because the p-value is large. The standard deviations in both groups are similar and this implies that the two groups have consistent perceptions about barriers to entry like consumer awareness, readiness to adopt and the perceived difficulty in the use of Immersive technologies. Therefore, gender does not play a serious role in the perception of consumer barriers in the study.

6.7.3 Age Wise Analysis

This section deals to check whether there is any influence of age of retailers on risks and barriers. ANOVA test is conducted to understand the perceptive of retailers.

The main hypothesis is

H1 : There is a significant difference in the perception of risks and barriers in implementing Immersive Commerce across age of the respondents.

Table 6.28

Age Wise Hypothesis on Risks and Barriers

Hypothesis No.	Hypothesis
H1a	There is a significant difference in age of retailers and their perception of Financial Risks in Immersive Commerce.
H1b	There is a significant in age of retailers and their perception of Operational Risks in Immersive Commerce.
H1c	There is a significant difference in age of retailers and their perception of Security and Privacy Risks in Immersive Commerce.
H1d	There is a significant difference in age of retailers and their perception of Consumer Inclusivity in Immersive Commerce.
H1e	There is a significant difference in age of retailers and their perception of Consumer Barriers in Immersive Commerce.

Table 6.29

ANOVA of Age wise category of respondents with risks and barriers

Construct	Age	N	Mean	SD	F-value	p-value	Remarks
Financial Risks	18–40	261	2.313	0.533	2.073	0.127	Not Significant
	41–60	120	2.269	0.539			
	60 above	9	2.639	0.435			
Operational Risks	18–40	261	2.24	0.588	3.197	0.042	Significant
	41–60	120	2.39	0.521			
	60 above	9	2.444	0.622			
Security &	18–40	261	1.645	0.423	5.898	0.003	Significant

Privacy Risks	41–60	120	1.481	0.491			
	60 above	9	1.722	0.441			
Consumer Inclusivity	18–40	261	1.618	0.416	3.05	0.048	Significant
	41–60	120	1.727	0.386			
	60 above	9	1.722	0.522			
Consumer Barriers	18–40	261	2.311	0.508	0.711	0.492	Not Significant
	41–60	120	2.292	0.51			
	60 above	9	2.5	0.451			

Source: Primary Data

The results indicate that there is a comparison of the age groups in all constructs confirming that there are both non-significant and significant differences. Financial Risks do not reveal any statistically significant differences between age groups (F = 2.073, p = .127), as perceptions of financial uncertainty in Immersive Commerce are similar among the respondents within the age groups of 18 40, 41 60 and above 60, even though the mean score in the oldest group is substantially higher (M = 2.64).

There are also great differences between Operational Risks based on age (F = 3.197, p =.042), because respondents between 41-60 years (M = 2.39) and over 60 (M = 2.44) recorded higher operation risks as compared to their age (M = 2.24). There is a high and considerably significant difference of Security and Privacy Risks (F = 5.898, p =.003), with the lowest risks reported by the 41-60 age group (M = 1.48), with the younger (M = 1.64) and the older respondents (M = 1.72) being more sensitive to the security and privacy risks. The perceptions of inclusivity also vary considerably depending on age (F = 3.050, p = .048), with the middle-aged and older ones (both around M = 1.72) exhibiting more concerns with consumer inclusivity than younger respondents (M = 1.62). Lastly, Consumer Barriers is not significantly different in age categories (F =.711, p =.492) so that the age categories have a similar opinion of the consumer-related barriers in the Immersive Commerce systems. In short, there seems to be an effect of age on Operational, Security & Privacy, and Inclusivity issues, whereas Financial Risks and Consumer Barriers do not differ significantly with groups.

Table 6.30

Multiple Comparison of Age with Risks and Barriers

Construct	Age (I)	Age (J)	Mean Difference (I–J)	Std. Error	Sig.
Financial Risks	18–40	41–60	0.04447	0.0588	0.73
	18–40	60 above	–0.32567	0.1806	0.17
	41–60	18–40	–0.04447	0.0588	0.73
	41–60	60 above	–0.37014	0.1841	0.11
	60 above	18–40	0.32567	0.1806	0.17
	60 above	41–60	0.37014	0.1841	0.11
Operational Risks	18–40	41–60	–0.15012*	0.0628	0.05
	18–40	60 above	–0.20498	0.193	0.54
	41–60	18–40	0.15012*	0.0628	0.05
	41–60	60 above	–0.05486	0.1967	0.96
	60 above	18–40	0.20498	0.193	0.54
	60 above	41–60	0.05486	0.1967	0.96
Security & Privacy Risks	18–40	41–60	0.16339*	0.0491	0.000
	18–40	60 above	–0.07759	0.151	0.87
	41–60	18–40	–0.16339*	0.0491	0.000
	41–60	60 above	–0.24097	0.154	0.26
	60 above	18–40	0.07759	0.151	0.87
	60 above	41–60	0.24097	0.154	0.26
Consumer Inclusivity	18–40	41–60	–0.10927*	0.0452	0.04
	18–40	60 above	–0.10441	0.1389	0.73
	41–60	18–40	0.10927*	0.0452	0.04
	41–60	60 above	0.00486	0.1416	1
	60 above	18–40	0.10441	0.1389	0.73

	60 above	41–60	–0.00486	0.1416	1
Consumer Barriers	18–40	41–60	0.01964	0.0559	0.93
	18–40	60 above	–0.18870	0.172	0.52
	41–60	18–40	–0.01964	0.0559	0.93
	41–60	60 above	–0.20833	0.1753	0.46
	60 above	18–40	0.1887	0.172	0.52
	60 above	41–60	0.20833	0.1753	0.46

Source: Primary Data

The Tukey HSD post-hoc tests reveal that most age groups do not differ significantly in their perceptions across the five risks and barrier constructs, with a few exceptions. For Operational Risks, a significant difference emerges between the 18–40 and 41–60 age groups (mean difference = –0.15012, p = .045), indicating that middle-aged respondents perceive higher operational challenges compared to younger participants. For Security & Privacy Risks, the 18–40 group reports significantly higher concerns than the 41–60 group (mean difference = 0.16339, p = .003), suggesting that younger respondents are more sensitive to digital security threats. In the domain of Inclusivity, a significant difference is also observed between these same two age groups (mean difference = –0.10927, p = .042), with middle-aged respondents perceiving greater inclusivity-related barriers than younger users. For Financial Risks and Consumer Barriers, no pair wise age comparison reaches statistical significance, confirming that these constructs are perceived similarly across all age categories. Overall, the meaningful differences are concentrated between the younger (18–40) and middle-aged (41–60) groups, while the "60 above" group does not significantly differ from others in any construct, likely due to small sample size.

6.7.4 Educational Qualification Wise Analysis

This section deals to check whether there is any influence of educational background of retailers on risks and barriers to the effective Implementation of Immersive Commerce. ANOVA test is conducted to understand the perceptive of retailers.

H1**:** There is a significant difference in the risks and barriers to the effective implementing Immersive Commerce across the educational qualifications of the respondents.

Table 6.31

Educational Qualification wise Hypothesis on Risks and Barriers

Hypothesis No.	Hypothesis
H1a	There is a significant difference in educational qualifications of retailers and their perception of financial risks in Immersive Commerce.
H1b	There is a significant in educational qualifications of retailers and their perception of Operational risks in Immersive Commerce.
H1c	There is a significant difference in educational qualifications of retailers and their perception of Security and Privacy Risks in Immersive Commerce.
H1d	There is a significant difference in educational qualifications of retailers and their perception of Consumer Inclusivity in Immersive Commerce.
H1e	There is a significant difference in educational qualifications of retailers and their perception of Consumer Barriers in Immersive Commerce.

Table 6.32

ANOVA of Educational Qualification and Risks and Barriers

Construct	Educational Qualification	N	Mean	SD	F-value	p-value	Remarks
Financial Risks	School/Matric	5	2.65	0.41833	1.131	0.343	Not Significant
	Plus Two/Diploma	4	2.75	0.35355			
	Degree	35	2.25	0.52511			
	Masters	118	2.286	0.56166			

	Professional	221	2.3145	0.52826			
	PhD	7	2.2143	0.3363			
Operational Risks	School/Matric	5	2.6	0.57554	1.284	0.27	Not Significant
	Plus Two/Diploma	4	2.1875	0.55434			
	Degree	35	2.0929	0.55269			
	Masters	118	2.2987	0.594			
	Professional	221	2.3077	0.56186			
	PhD	7	2.4286	0.57217			
Security & Privacy Risks	School/Matric	5	1.95	0.1118	2.502	0.03	Significant
	Plus Two/Diploma	4	1.625	0.43301			
	Degree	35	1.8	0.3197			
	Masters	118	1.5869	0.46956			
	Professional	221	1.5656	0.45251			
	PhD	7	1.4286	0.53452			
Consumer Inclusivity	School/Matric	5	1.2	0.44721	3.856	0.002	Significant
	Plus Two/Diploma	4	1.375	0.43301			
	Degree	35	1.8286	0.31373			
	Masters	118	1.7076	0.38161			
	Professional	221	1.6165	0.42406			
	PhD	7	1.5357	0.50885			
Consumer Barriers	School/Matric	5	2.35	0.60208	0.225	0.952	Not Significant
	Plus Two/Diploma	4	2.3125	0.47324			
	Degree	35	2.2929	0.51978			
	Masters	118	2.3475	0.47595			
	Professional	221	2.2896	0.52426			
	PhD	7	2.3571	0.47559			

Source: Primary Data

The descriptive results across the six educational qualification groups School/Matric, Plus Two/Diploma, Degree, Masters, Professional Qualification, and PhD provide a comprehensive understanding of how respondents perceive various risk and barrier constructs associated with Immersive Commerce Implementation. The analysis shows varying mean scores for Financial Risks, Operational Risks, Security & Privacy Risks, Inclusivity, and Consumer Barriers; however, the level of variation differs considerably across constructs, as confirmed by the ANOVA

results. The ANOVA tests were conducted to determine whether these observed differences in mean scores are statistically significant across educational groups.

For Financial Risks, the mean values range from 2.214 (PhD) to 2.750 (Plus Two/Diploma), indicating slight perceptual differences, with lower education groups reporting marginally higher concerns about financial uncertainties linked to Immersive Commerce. However, the ANOVA result ($F = 1.131$, $p = .343$) clearly shows that these differences are not statistically significant. This suggests that individuals across all educational backgrounds share a similar perception regarding the financial risks of adopting Immersive Commerce technologies. In other words, regardless of academic qualification, employees perceive financial uncertainty, cost–risk considerations, and return-on-investment concerns in a consistent manner.

A similar pattern emerges for Operational Risks, where the mean values also show notable variation descriptively from 2.093 (Degree) to 2.600 (School/Matric) but the statistical test again indicates no significant difference ($F = 1.284$, $p = .270$). This implies that operational challenges, such as the possibility of technical failures, system integration issues, and maintenance burdens, are perceived uniformly across educational categories. The lack of significant variation indicates that operational risk awareness is widespread across all levels of education, likely because these challenges are experienced practically on the ground and not necessarily dependent on one's academic background.

The findings shift notably when examining Security & Privacy Risks, with descriptive means ranging from 1.4286 (PhD) to 1.9500 (School/Matric). The ANOVA results show a statistically significant difference ($F = 2.502$, $p = .030$), meaning that educational qualification meaningfully affects perceptions of data security threats, privacy concerns, and cyber-related vulnerabilities in Immersive systems. Lower-educated groups (School/Matric and Diploma) report higher levels of concern, which may reflect limited exposure to digital systems and lower confidence in handling technology-related risks. Conversely, higher educational groups (Masters, Professional, PhD) demonstrate lower perceived risks, likely due to greater technological familiarity, digital literacy, and awareness of security protocols. This variance indicates that awareness programs and targeted training

may be necessary for lower education categories to ensure smooth adoption of Immersive technologies.

Another construct showing significant variation is Inclusivity, where mean values range from 1.20 (School/Matric) to 1.8286 (Degree). The ANOVA result ($F = 3.856$, $p = .002$) demonstrates a strong influence of educational qualification on perceptions related to inclusivity challenges in Immersive Commerce. Lower educational groups appear to feel less included or more concerned about accessibility, indicating that Immersive technologies may be perceived as difficult or intimidating tools that could leave them behind. Higher educational groups, especially Degree and Masters Holders, show higher inclusivity perceptions, possibly due to greater exposure to digital environments and confidence in adaptability. This suggests that inclusivity issues in Immersive Commerce are linked to educational exposure and perceived technological competence.

In the case of Consumer Barriers, although descriptive means show slight differences between groups, ranging from 2.2929 (Degree) to 2.3500 (School/Matric), the ANOVA result ($F = .225$, $p = .952$) confirms that these differences are statistically insignificant. This indicates that across all educational levels, respondents perceive consumer-related barriers such as customer hesitation, usability limitations, or lack of awareness in almost the same way. Such uniformity suggests that consumer-related issues are seen as external challenges that affect all employees similarly, regardless of their educational background.

Overall, among the five constructs analyzed, only Security & Privacy Risks and Inclusivity show statistically significant differences across educational qualifications. These findings highlight the need for targeted interventions to improve tech confidence, digital literacy, and inclusiveness among lower-educated groups. Meanwhile, uniform perceptions of financial, operational, and consumer barriers reflect shared experiences and common organizational realities faced by individuals across all education levels. This analysis thus provides meaningful insights for policymakers, retail managers, and researchers seeking to enhance Immersive Commerce Implementation in the Indian retail sector.

Table 6.33

Multiple Comparisons of Educational Qualification and Risks and Barriers

Construct	Educational Qualification (I)	Educational Qualification (J)	Mean Difference (I-J)	Std. Error	Sig.
Financial Risks	School or Matriculation Level	Plus Two/Diploma Level	-.10000	.35811	1.000
		Degree Level	.40000	.25522	.621
		Masters Level	.36398	.24374	.669
		Professional Qualification	.33552	.24142	.733
		PhD	.43571	.31258	.731
	Plus Two/Diploma Level	School or Matriculation Level	.10000	.35811	1.000
		Degree Level	.50000	.28176	.483
		Masters Level	.46398	.27140	.526
		Professional Qualification	.43552	.26932	.588
		PhD	.53571	.33460	.598
	Degree Level	School or Matriculation Level	-.40000	.25522	.621
		Plus Two/Diploma Level	-.50000	.28176	.483
		Masters Level	-.03602	.10275	.999
		Professional Qualification	-.06448	.09712	.986
		PhD	.03571	.22103	1.000
	Masters Level	School or Matriculation Level	-.36398	.24374	.669
		Plus Two/Diploma Level	-.46398	.27140	.526
		Degree Level	.03602	.10275	.999
		Professional Qualification	-.02846	.06087	.997

		PhD	.07173	.20767	.999
	Professional Qualification	School or Matriculation Level	-.33552	.24142	.733
		Plus Two/Diploma Level	-.43552	.26932	.588
		Degree Level	.06448	.09712	.986
		Masters Level	.02846	.06087	.997
		PhD	.10019	.20494	.997
	PhD	School or Matriculation Level	-.43571	.31258	.731
		Plus Two/Diploma Level	-.53571	.33460	.598
		Degree Level	-.03571	.22103	1.000
		Masters Level	-.07173	.20767	.999
		Professional Qualification	-.10019	.20494	.997
Operational Risks	School or Matriculation Level	Plus Two/Diploma Level	.41250	.38324	.891
		Degree Level	.50714	.27313	.431
		Masters Level	.30127	.26085	.858
		Professional Qualification	.29231	.25837	.868
		PhD	.17143	.33452	.996
	Plus Two/Diploma Level	School or Matriculation Level	-.41250	.38324	.891
		Degree Level	.09464	.30153	1.000
		Masters Level	-.11123	.29045	.999
		Professional Qualification	-.12019	.28822	.998
		PhD	-.24107	.35808	.985
	Degree Level	School or Matriculation Level	-.50714	.27313	.431
		Plus Two/Diploma Level	-.09464	.30153	1.000

		Masters Level	-.20587	.10996	.421
		Professional Qualification	-.21484	.10393	.307
		PhD	-.33571	.23654	.715
	Masters Level	School or Matriculation Level	-.30127	.26085	.858
		Plus Two/Diploma Level	.11123	.29045	.999
		Degree Level	.20587	.10996	.421
		Professional Qualification	-.00896	.06514	1.000
		PhD	-.12984	.22224	.992
	Professional Qualification	School or Matriculation Level	-.29231	.25837	.868
		Plus Two/Diploma Level	.12019	.28822	.998
		Degree Level	.21484	.10393	.307
		Masters Level	.00896	.06514	1.000
		PhD	-.12088	.21932	.994
	PhD	School or Matriculation Level	-.17143	.33452	.996
		Plus Two/Diploma Level	.24107	.35808	.985
		Degree Level	.33571	.23654	.715
		Masters Level	.12984	.22224	.992
		Professional Qualification	.12088	.21932	.994
Security & Privacy Risks	School or Matriculation Level	Plus Two/Diploma Level	.32500	.29970	.887
		Degree Level	.15000	.21360	.982
		Masters Level	.36314	.20399	.480
		Professional Qualification	.38439	.20205	.402
		PhD	.52143	.26160	.348
	Plus	School or	-.32500	.29970	.887

	Two/Diploma Level	Matriculation Level			
		Degree Level	-.17500	.23580	.977
		Masters Level	.03814	.22714	1.000
		Professional Qualification	.05939	.22540	1.000
		PhD	.19643	.28003	.982
	Degree Level	School or Matriculation Level	-.15000	.21360	.982
		Plus Two/Diploma Level	.17500	.23580	.977
		Masters Level	.21314	.08599	.133
		Professional Qualification	.23439*	.08128	.047
		PhD	.37143	.18498	.340
	Masters Level	School or Matriculation Level	-.36314	.20399	.480
		Plus Two/Diploma Level	-.03814	.22714	1.000
		Degree Level	-.21314	.08599	.133
		Professional Qualification	.02125	.05094	.998
		PhD	.15829	.17380	.944
	Professional Qualification	School or Matriculation Level	-.38439	.20205	.402
		Plus Two/Diploma Level	-.05939	.22540	1.000
		Degree Level	-.23439*	.08128	.047
		Masters Level	-.02125	.05094	.998
		PhD	.13704	.17152	.968
	PhD	School or Matriculation Level	-.52143	.26160	.348
		Plus Two/Diploma Level	-.19643	.28003	.982

		Degree Level	-.37143	.18498	.340
		Masters Level	-.15829	.17380	.944
		Professional Qualification	-.13704	.17152	.968
Inclusivity	School or Matriculation Level	Plus Two/Diploma Level	-.17500	.27142	.987
		Degree Level	-.62857*	.19344	.016
		Masters Level	-.50763	.18474	.068
		Professional Qualification	-.41652	.18298	.206
		PhD	-.33571	.23691	.717
	Plus Two/Diploma Level	School or Matriculation Level	.17500	.27142	.987
		Degree Level	-.45357	.21355	.277
		Masters Level	-.33263	.20570	.588
		Professional Qualification	-.24152	.20413	.845
		PhD	-.16071	.25360	.988
	Degree Level	School or Matriculation Level	.62857*	.19344	.016
		Plus Two/Diploma Level	.45357	.21355	.277
		Masters Level	.12094	.07788	.630
		Professional Qualification	.21206*	.07361	.048
		PhD	.29286	.16752	.501
	Masters Level	School or Matriculation Level	.50763	.18474	.068
		Plus Two/Diploma Level	.33263	.20570	.588
		Degree Level	-.12094	.07788	.630
		Professional Qualification	.09111	.04613	.359
		PhD	.17191	.15740	.884
	Professional	School or Matriculation	.41652	.18298	.206

	Qualification	Level			
		Plus Two/Diploma Level	.24152	.20413	.845
		Degree Level	-.21206*	.07361	.048
		Masters Level	-.09111	.04613	.359
		PhD	.08080	.15533	.995
	PhD	School or Matriculation Level	.33571	.23691	.717
		Plus Two/Diploma Level	.16071	.25360	.988
		Degree Level	-.29286	.16752	.501
		Masters Level	-.17191	.15740	.884
		Professional Qualification	-.08080	.15533	.995
Consumer Barriers	School or Matriculation Level	Plus Two/Diploma Level	.03750	.34170	1.000
		Degree Level	.05714	.24353	1.000
		Masters Level	.00254	.23258	1.000
		Professional Qualification	.06041	.23036	1.000
		PhD	-.00714	.29826	1.000
	Plus Two/Diploma Level	School or Matriculation Level	-.03750	.34170	1.000
		Degree Level	.01964	.26885	1.000
		Masters Level	-.03496	.25897	1.000
		Professional Qualification	.02291	.25698	1.000
		PhD	-.04464	.31927	1.000
	Degree Level	School or Matriculation Level	-.05714	.24353	1.000
		Plus Two/Diploma Level	-.01964	.26885	1.000
		Masters Level	-.05460	.09804	.994
		Professional Qualification	.00326	.09267	1.000
		PhD	-.06429	.21090	1.000
	Masters Level	School or	-.00254	.23258	1.000

		Matriculation Level			
		Plus Two/Diploma Level	.03496	.25897	1.000
		Degree Level	.05460	.09804	.994
		Professional Qualification	.05786	.05808	.919
		PhD	-.00969	.19816	1.000
	Professional Qualification	School or Matriculation Level	-.06041	.23036	1.000
		Plus Two/Diploma Level	-.02291	.25698	1.000
		Degree Level	-.00326	.09267	1.000
		Masters Level	-.05786	.05808	.919
		PhD	-.06755	.19555	.999
	PhD	School or Matriculation Level	.00714	.29826	1.000
		Plus Two/Diploma Level	.04464	.31927	1.000
		Degree Level	.06429	.21090	1.000
		Masters Level	.00969	.19816	1.000
		Professional Qualification	.06755	.19555	.999
*. The mean difference is significant at the 0.05 level.					

Source: Primary Data

6.7.5 Year of Experience Wise Analysis

This section deals to check whether there is any influence of Previous experience of retailers on risks and barriers to the effective Implementation of Immersive Commerce. ANOVA test is conducted to understand the perceptive of retailers.

The main hypothesis is

H1: There is a significant difference in the perception of risks and barriers to the effective Implementation of Immersive Commerce across the previous experience of retailers

Table 6.34

Experience Wise Hypothesis on Risks and Barriers

Hypothesis No.	Hypothesis
H1a	There is a significant difference in Previous experience of retailers and their perception of financial risks in Immersive Commerce.
H1b	There is a significant in Previous experience of retailers and their perception of Operational risks in Immersive Commerce.
H1c	There is a significant difference in Previous experience of retailers and their perception of security and privacy risks in Immersive Commerce.
H1d	There is a significant difference in Previous experience of retailers and their perception of Consumer Inclusivity in Immersive Commerce.
H1e	There is a significant difference in Previous experience of retailers and their perception of Consumer Barrier in Immersive Commerce.

Table 6.35

ANOVA table showing Year of experience and Risks and barriers

Construct	Year of Experience	N	Mean	SD	F-value	p-value	Remarks
Financial Risks	Less than 1 year	11	2.136	0.574	1.056	0.378	Not Significant
	1–3 years	50	2.33	0.483			
	4–7 years	162	2.358	0.516			
	8–10 years	151	2.27	0.559			
	10+ years	16	2.188	0.602			
Operational Risks	Less than 1 year	11	2.023	0.48	1.594	0.175	Not Significant
	1–3 years	50	2.37	0.472			
	4–7 years	162	2.252	0.589			
	8–10 years	151	2.303	0.597			
	10+ years	16	2.5	0.438			
Security & Privacy Risks	Less than 1 year	11	1.546	0.522	8.423	0	Significant
	1–3 years	50	1.34	0.468			
	4–7 years	162	1.586	0.442			

	8–10 years	151	1.719	0.401			
	10+ years	16	1.375	0.5			
Consumer Inclusivity	Less than 1 year	11	1.75	0.274	2.993	0.019	Significant
	1–3 years	50	1.81	0.363			
	4–7 years	162	1.644	0.426			
	8–10 years	151	1.596	0.41			
	10+ years	16	1.75	0.398			
Consumer Barriers	Less than 1 year	11	2.205	0.65	0.391	0.815	Not Significant
	1–3 years	50	2.29	0.456			
	4–7 years	162	2.312	0.526			
	8–10 years	151	2.333	0.495			
	10+ years	16	2.203	0.51			

The perceptions of Immersive Commerce related to risks and barriers with experience of the retailer is studied by the researcher found that most of the constructs are not statistically significant based on the test conducted via., one-way ANOVA analysis. It was suggested that the retailer who are new entrants or seasoned professionals, tend to share relatively similar viewpoints about these specific risks and barriers related to Immersive Commerce.

In the case of Financial Risks ($p = 0.378$), the distributions of the mean scores in terms of experience groups are similar, which means that there is a common perception that the financial uncertainty, Implementation cost, or investment-related risks of Immersive Commerce are equally perceived in the industry. There is no significant difference between Operational Risks ($p = 0.175$), which is that retailers with all experience levels are concerned about common operational issues, the complexity of technologies, or risks in the workflow due to Immersive technologies. Likewise, Consumer Barriers ($p = 0.815$) - which entails consumer hesitation, a lack of being informed or resistant to using AR/VR also manifesting stable perceptions in all categories of experiences that show that frontline staff and experienced managers are in agreement on the degree to which consumers may be struggling to adopt.

On the contrary, the statistically significant differences are observed in the following two constructs: Security and Privacy Risks ($p = 0.000$) and Consumer Inclusivity ($p = 0.019$). In the case of Security & Privacy Risks, employees with middle and high-level experience (especially those with 810 years) give more risk ratings than those with less than 1 year and 13 years of experience. It implies that the more employees are exposed to the mechanics of retail business and digital technologies, the more they are aware of the weaknesses associated with the customer data management, cyber security, online fraud, and privacy compliance issues related to the Immersive Commerce platforms. The more experienced employees might have been exposed to more working situations that involved risks of data and therefore they might be more wary and sensitive to the problems. Conversely, employees who are extremely experienced (10 and above) are fairly mediocre in concern, which might be because of the assuredness that is a result of a long time in the industry or that is as a result of adopted risk-referent behavioral patterns.

Consumer Inclusivity is also a construct where there is a high variation in experience groups. The middle-range experience (4 -7 years and 8-10 years) employees are more likely to score inclusiveness issues lower than fresh employees or highly experienced. This implies that new entrants and practitioners might find it more difficult than the mid-experience groups to find Immersive Commerce technologies to accommodate relatively diverse consumer segments on issues of accessibility, ease of use, and the ability to accommodate older, rural, or digitally illiterate clients. New workers might not be fully exposed to the pattern of consumer behavior, and very experienced workers might be more aware of the problem of inclusiveness in retail that has been long-standing.

On the whole, the findings suggest that though most of the perceived risks of Immersive Commerce are apprehended in a similar way at all levels of experience, certain fears in the area of digital security and consumer inclusiveness are strongly dependent on professional experience that employees have.

Table 6.36

Multiple Comparison of Year of Experience and Risks and Barriers

Construct	Year of Experience (I)	Year of Experience (J)	Mean Difference (I–J)	Std. Error	Sig.
Security & Privacy Risks	1–3 years	4–7 years	-0.24642*	0.07034	0.005
	1–3 years	8–10 years	-0.37854*	0.07094	0.000
	8–10 years	10+ years	0.34354*	0.11431	0.024
Inclusivity	1–3 years	8–10 years	0.21397*	0.06654	0.012
	8–10 years	1–3 years	-0.21397*	0.06654	0.012

The Tukey HSD post-hoc test demonstrates that perception difference of employees on Security and Privacy risk and Inclusivity also significantly differ among some groups of employees basing on experience. The workers with 1-3 years experience in the field of Security and Privacy risks are experiencing a significantly lesser security concern when compared to the workers with 4-7 years experience and 8-10 years experience, which implies that middle career workers are more likely to be aware of data protection and privacy risks of Immersive technologies. Also, the workers experience with 8-10 years experience are much more characterized in terms of security and privacy issues than the workers experience over 10 years old which could be a sign that over experienced staffs could be more at ease or accustomed to such issues. In terms of Inclusivity, the employees with 1 years experience through to 3 years experience have far more concerns about inclusivity than the other employees with 8 years through to the 10 years experience implying that the employees who are in the early stages of their career are more likely to believe that the issues are of concern to them as compared to the employee who are in the middle range of experience. In general, the post-hoc results indicate that the impressions of digital security risks and inclusiveness of the consumers are not uniform but strongly rely on the experience of the employees in the retailing sector.

6.7.6 Position/Designation Analysis

This section deals to check whether there is any influence of Position/Designation of retailers on risks and barriers to the effective Implementation of Immersive Commerce. ANOVA test is conducted to understand the perceptive of retailers.

The main hypothesis is

H1: There is a significant difference in the perception of risks and barriers to the effective Implementation of Immersive Commerce across the Position/Designation of retailers.

Table 6.37

Position/Designation Wise Hypotheses on Risks and Barriers

Hypothesis No.	Hypothesis
H1a	There is a significant difference in the Position/Designation of retailers and their perception of financial risks in Immersive Commerce.
H1b	There is a significant in the Position/Designation of retailers and their perception of Operational risks in Immersive Commerce.
H1c	There is a significant difference in Position/Designation of retailers and their perception of security and privacy risks in Immersive Commerce.
H1d	There is a significant difference in Position/Designation of retailers and their perception of Consumer Inclusivity in Immersive Commerce.
H1e	There is a significant difference in Position/Designation of retailers and their perception of Consumer Barrier in Immersive Commerce.

Table 6.38

ANOVA showing the Position/Designation and Risks and Barriers

Construct	Position / Designation	N	Mean	SD	F-value	p-value	Remarks
Financial Risks	Franchise Partner	74	2.3784	0.5632	0.744	0.527	Not Significant
	Manager	109	2.2592	0.5599			
	Owner	175	2.31	0.5021			
	Others	32	2.2891	0.5539			
	Total	390	2.3071	0.5343			
Operational Risks	Franchise Partner	74	2.2466	0.5403	0.338	0.798	Not Significant
	Manager	109	2.2798	0.5781			
	Owner	175	2.3029	0.5758			
	Others	32	2.3594	0.6219			
	Total	390	2.2904	0.5723			
Security & Privacy Risks	Franchise Partner	74	1.4595	0.47	2.956	0.032	Significant
	Manager	109	1.6193	0.4443			
	Owner	175	1.64	0.4301			
	Others	32	1.5938	0.4989			
	Total	390	1.5962	0.4511			
Consumer Inclusivity	Franchise Partner	74	1.6655	0.3931	0.656	0.579	Not Significant
	Manager	109	1.6284	0.4298			
	Owner	175	1.6486	0.417			
	Others	32	1.7422	0.3674			
	Total	390	1.6538	0.4119			
Consumer Barriers	Franchise Partner	74	2.2838	0.4831	0.371	0.774	Not Significant
	Manager	109	2.3372	0.4992			
	Owner	175	2.2929	0.522			
	Others	32	2.3672	0.5158			
	Total	390	2.3096	0.5068			

Source: Primary Data

The ANOVA results show that Position/Designation does not significantly influence most risks and barriers, except for Security & Privacy Risks. In Financial riks, the difference was found to be low (Sum of Squares = 0.638, F = 0.744, p = 0.527), indicating that no significant difference across designations. Operational Risks showed no meaningful difference (Sum of Squares = 0.333, F = 0.338, p = 0.798), and Consumer Inclusivity barriers also indicate statistically non-significant (Sum of Squares = 0.335, F = 0.656, p = 0.579). Consumer Barriers show the same pattern with no significant effect (Sum of Squares = 0.287, F = 0.371, p = 0.774). However, Security & Privacy Risks displayed a significant difference across designations (Sum of Squares = 1.778, F = 2.956, p = 0.032), suggesting that employees at different hierarchical levels perceive security-related challenges differently. Overall, except for security and privacy risks, all other risks and barriers appear to be perceived similarly across different position/designation groups.

Table 6.39

Multiple Comparison Showing Position/Designation

(I) Position/Designation		Mean Difference (I-J)	Std. Error	Sig.
Franchise Partner	Manager	-.15981	.06743	.085
	Owner	-.18054*	.06208	.020
	Others	-.13429	.09472	.489
Manager	Franchise Partner	.15981	.06743	.085
	Owner	-.02073	.05463	.981
	Others	.02552	.09001	.992
Owner	Franchise Partner	.18054*	.06208	.020
	Manager	.02073	.05463	.981
	Others	.04625	.08607	.950
Others	Franchise Partner	.13429	.09472	.489
	Manager	-.02552	.09001	.992
	Owner	-.04625	.08607	.950
*. The mean difference is significant at the 0.05 level.				

Source: Primary Data

The Tukey HSD post hoc results for the dependent variable Security & Privacy Risks show that position/designation has a limited but notable effect on how respondents perceive these risks. Among all pair wise comparisons, only one difference is statistically significant at the 0.05 level: Owners report significantly higher Security & Privacy Risk scores compared to Franchise Partners (mean difference = 0.18054, p = .020). This confirms that owners may feel more accountable for privacy and security of data and its protection and compliance, and technological vulnerabilities. All other comparisons between Managers, Others, and Franchise Partners are not significant (p > .05), indicating that these groups perceive security and privacy risks at relatively similar levels. Overall, only Owners differ meaningfully from Franchise Partners, while the remaining groups show no substantial differences in their perception of security and privacy risks.

6.7.7 Retail Format Analysis

This section deals to check whether there is any influence of retail format of the firm on risks and barriers to the effective Implementation of Immersive Commerce. ANOVA test is conducted to understand the perceptive of retailers.

H1: There is a significant difference in the perception of risks and barriers to the effective Implementation of Immersive Commerce across the retail format of the firm.

Table 6.40

Retail format wise Hypothesis on Risks and Barriers

Hypothesis No.	Hypothesis
H1a	There is a significant difference in the retail format of the firm and their perception of financial risks in Immersive Commerce.
H1b	There is a significant in the retail format of the firm and their perception of Operational risks in Immersive Commerce.
H1c	There is a significant difference in retail format of the firm and their perception of security and privacy risks in Immersive Commerce.
H1d	There is a significant difference in retail format of the firm and their perception of Consumer Inclusivity in Immersive Commerce.
H1e	There is a significant difference in retail format of the firm and their perception of Consumer Barrier in Immersive Commerce.

Table 6.41

ANOVA table showing Retail format and Risks and Barriers

Construct	Retail Format	N	Mean	SD	F-value	p-value	Remarks
Financial Risks	Brick & Mortar	18	2.4028	0.5365	1.727	0.179	Not Significant
	E-Commerce/M-Commerce	144	2.3611	0.471			
	Omni Channel	228	2.2654	0.5688			
Operational Risks	Brick & Mortar	18	2.2917	0.4794	1.502	0.224	Not Significant
	E-Commerce/M-Commerce	144	2.2257	0.6197			
	Omni Channel	228	2.3311	0.5458			
Security & Privacy Risks	Brick & Mortar	18	1.6111	0.4132	0.017	0.983	Not Significant
	E-Commerce/M-Commerce	144	1.592	0.4587			
	Omni Channel	228	1.5976	0.4509			
Consumer Inclusivity	Brick & Mortar	18	1.4167	0.4697	5.081	0.007	Significant
	E-Commerce/M-Commerce	144	1.717	0.36			
	Omni Channel	228	1.6327	0.4304			
Consumer Barriers	Brick & Mortar	18	2.5278	0.4363	2.301	0.102	Not Significant
	E-Commerce/M-Commerce	144	2.3333	0.4849			
	Omni Channel	228	2.2774	0.5222			

Source: Primary Data

Financial Risks results are 2.4028 (SD = 0.53646, N = 18) in Brick-and-Mortar retailers, 2.3611 (SD = 0.47099, N = 144) in E-Commerce/M-Commerce and 2.2654 (SD = 0.56882, N = 228) in Omni-Channel retailers. The ANOVA value of Financial Risks (F = 1.727, p =.179) shows that no statistically significant difference exists between the three formats. In the case of Operational Risks, the mean is 2.2917 (SD = 0.47935, N = 18) in the case of Brick-and-Mortar, 2.2257 (SD =

0.61969, N = 144) in the case of E-Commerce/M-Commerce, and 2.3311 (SD = 0.54580, N = 228) in the case of Omni-Channel retailers. The ANOVA test does not find any significant difference between Operational Risks (F = 1.502, p =.224). The mean, in the case of Security and Privacy Risks, is 1.6111 (SD = 0.41322, N = 18) in the case of Brick-and-Mortar retailers, 1.5920 (SD = 0.45874, N = 144) in the case of E-Commerce/M-Commerce, and 1.5976 (SD = 0.45085, N = 228) in the case of Omni- The ANOVA value (F = 0.017, p =.983) shows no significant difference between different format of retail. In the category of Consumer Barriers, the Brick-and-Mortar retailer has the highest mean of 2.5278 (SD = 0.43630, N = 18), then E-Commerce/M-Commerce with 2.3333 (SD = 0.48491, N = 144) and finally Omni-Channel with 2.2774 (SD = 0.52216, N = 228). The value of the ANOVA of Consumer Barriers (F = 2.301, p = .102) proves that the differences between the three retail formats are not statistically significant.

The only variable that has a statistically significant difference in retail format is Consumer Inclusivity. The mean of Brick-and-Mortar retailers is 1.4167 (SD = 0.46967, N = 18), E-Commerce/M-Commerce retailers are 1.7170 (SD = 0.35998, N = 144), and the Omni-Channel retailers have a mean of 1.6327 (SD = 0.43039, N = 228). The Consumer Inclusivity ANOVA test results in F = 5.081 and p =.007 which means that there is a significant difference between the three groups.

Table 6.42

Multiple Comparisons between various retail format and consumer inclusivity

(I) Type of Retail		Mean Difference (I-J)	Std. Error	Sig.
Brick and Mortar	E-Commerce/M-Commerce	-.30035*	.10193	.010
	Omni Channel	-.21601	.09982	.079
E-Commerce/M-Commerce	Brick and Mortar	.30035*	.10193	.010
	Omni Channel	.08434	.04340	.128
Omni Channel	Brick and Mortar	.21601	.09982	.079
	E-Commerce/M-Commerce	-.08434	.04340	.128
*. The mean difference is significant at the 0.05 level.				

Source: Primary Data

The Tukey HSD post-hoc results of the Consumer Inclusivity indicate that the statistically significant difference between Brick-and-Mortar retailers and E-Commerce/M-Commerce retailers is only (Mean Difference = -0.30035, p =.010). This implies that E-Commerce/M-Commerce formats score much higher in Consumer Inclusiveness scores than the Brick-and-Mortar stores. Conversely, the alpha of the differences between Brick-and-Mortar and Omni-Channel, E-Commerce/M-Commerce and Omni-Channel are not significant since their alpha values are greater than the alpha of 0.05. Omni-Channel display relatively more significant perceptions of inclusivity as opposed to Brick-and-Mortar and slightly lower than E-Commerce/M-Commerce, the differences are not significant enough to be viewed as meaningful in statistical terms.

Thus, the results suggest that retail formats can be seen as more inclusive, probably because they are more accessible, can be customized and offer a variety of ways to support customers, and traditional stores are lagging in their intentions to make their offerings a more inclusive environment to all types of consumers.

6.7.8 Annual Turnover of the firm Analysis

This section deals to check whether there is any influence of Annual turnover of the firm on risks and barriers to the effective Implementation of Immersive Commerce. ANOVA test is conducted to understand the perceptive of retailers.

H1**:** There is a significant difference in the perception of risks and barriers to the effective Implementation of Immersive Commerce across the Annual turnover of the firm.

Table 6.43

Annual Turnover wise Hypothesis on Risks and Barriers

Hypothesis No.	Hypothesis
H1a	There is a significant difference in the Annual turnover of the firm and their perception of financial risks in Immersive Commerce.
H1b	There is a significant in the Annual turnover of the firm and their perception of Operational risks in Immersive Commerce.
H1c	There is a significant difference in Annual turnover of the firm and their perception of security and privacy risks in Immersive Commerce.
H1d	There is a significant difference in Annual turnover of the firm and their perception of Consumer Inclusivity in Immersive Commerce.
H1e	There is a significant difference in Annual turnover of the firm and their perception of Consumer Barrier in Immersive Commerce.

Table 6.44

ANOVA table showing Annual Turnover and Risks and Barriers

Construct	Annual Turnover	N	Mean	SD	F-value	p-value	Remarks
Financial Risks	10 Crore and Above	70	2.2893	0.52585	0.533	0.712	Not significant
	5 Crore – 10 Crore	89	2.3483	0.4966			
	1 Crore – 5 Crore	131	2.3015	0.56562			
	50 Lakhs – 1 Crore	79	2.3228	0.54325			
	Less than 50 Lakhs	21	2.1667	0.50208			
Operational Risks	10 Crore and Above	70	2.3571	0.55425	0.657	0.622	Not significant
	5 Crore – 10 Crore	89	2.2612	0.58619			
	1 Crore – 5 Crore	131	2.2481	0.58712			
	50 Lakhs – 1 Crore	79	2.307	0.54736			

	Less than 50 Lakhs	21	2.3929	0.58934			
Security & Privacy Risks	10 Crore and Above	70	1.6393	0.44971	0.757	0.554	Not significant
	5 Crore – 10 Crore	89	1.5674	0.45814			
	1 Crore – 5 Crore	131	1.6221	0.44975			
	50 Lakhs – 1 Crore	79	1.5791	0.45387			
	Less than 50 Lakhs	21	1.4762	0.43232			
Consumer Inclusivity	10 Crore and Above	70	1.6321	0.4438	0.332	0.857	Not significant
	5 Crore – 10 Crore	89	1.6657	0.41448			
	1 Crore – 5 Crore	131	1.6393	0.40686			
	50 Lakhs – 1 Crore	79	1.6614	0.40636			
	Less than 50 Lakhs	21	1.7381	0.36637			
Consumer Barriers	10 Crore and Above	70	2.2786	0.52912	1.321	0.261	Not significant
	5 Crore – 10 Crore	89	2.3764	0.46178			
	1 Crore – 5 Crore	131	2.3206	0.506			
	50 Lakhs – 1 Crore	79	2.2975	0.53421			
	Less than 50 Lakhs	21	2.1071	0.49731			

Source: Primary Data

The result of ANOVA of risks and barriers among various annual turnover of the firm suggest that annual turnover has no statistically significant effect on any of the tested constructs, such as Financial Risks, Operational Risks, Security and Privacy Risks, Consumer Inclusivity and Consumer Barriers as all p-values are more than 0.05. Despite the insignificance of the differences, the descriptive statistics give valuable information about trends in turnover categories. Financial Risks,

comparatively the scores are similar with slightly higher concerns among retailers in the turnover level of 5 Crore-10 Crore and relatively lower concerns among retailers with less than 50 Lakhs suggesting that financial risk perceptions are far and wide spread and are not directly linked to the business size. In the same way, with Operational Risks, the turnover groups have virtually the same mean scores, implying that all the difficulties associated with system performance, technology operations, and integration issues are shared across the small and large retailers. Security/Privacy Risk presents mean values slightly smaller in lower turnover businesses, which suggests slightly less concern, perhaps because of less complex digital environments, though this result is not significant. Consumer Inclusivity scores are also not significantly different which means that the issue about serving different customer segments remains the same regardless of the scale of business. The same trend is found in the construct Consumer Barriers with the mid-range turnover retailers (510 Crore) reporting a bit more concerns as compared to small retailers (below 50 Lakhs) which have relatively less means, probably due to the complexity of consumer interaction. In general, the findings underscore that retailers irrespective of turnover encounter the same amount of risks and obstacles in deploying Immersive Commerce strategies thus suggesting that the problem is structural and will be experienced across the industry and not just based on business turnover. This consistency means that policy interventions, capacity building tools and technological assistance ought to focus on solving issues on an ecosystem level, to the benefit of the retailers of all financial backgrounds.

6.8 Relationship of Negative Impact Factors on Successful Implementation of Immersive Commerce

The Structural Equation Modelling is adopted to establish the relationship between the Implementation and growth of Immersive Commerce and its negative impact factors like, Challenges, risks and barriers.

Exploratory Factor Analysis (EFA) was conducted to identify the factor which is suitable for further analysis. The Kaiser–Meyer–Olkin (KMO) test value indicates

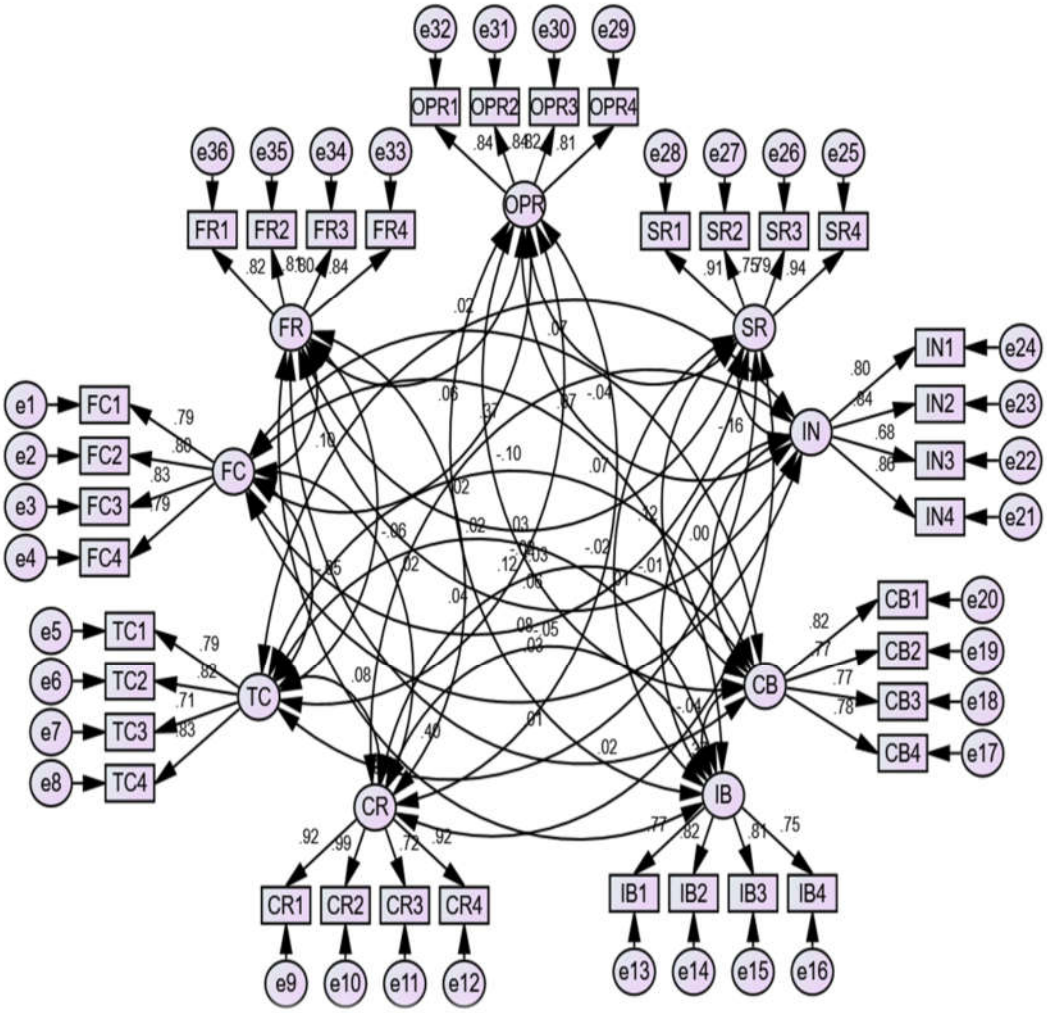
the acceptable threshold , which is greater than 0.60 which represents sampling adequacy and Bartlett's Test of Sphericity, which was significant i.e., p-value is less than 0.05 implying correlations among items (Hair et al., 2019).

Confirmatory Factor Analysis (CFA)

The following figure shows the Confirmatory Factor Analysis

Figure 6.2

Measurement Model of Negative Impact Factors that affect Successful Implementation of Immersive Commerce



Construct validity is measured through convergent validity and discriminant validity.

Convergent Validity

The following table shows the results of convergent validity of various construct employed in the model

Table 6.45

Convergent Validity

Construct	Item	Factor Loadings	CR	AVE
Financial Constraints	FC1	0.787	0.88	0.64
	FC2	0.805		
	FC3	0.825		
	FC4	0.793		
Tech-related Constraints	TC1	0.795	0.87	0.63
	TC2	0.821		
	TC3	0.709		
	TC4	0.831		
Infrastructure Blockage	IB1	0.765	0.87	0.62
	IB2	0.819		
	IB3	0.808		
	IB4	0.753		
Consumer Readiness Issues	CR1	0.921	0.94	0.8
	CR2	0.992		
	CR3	0.721		
	CR4	0.92		
Financial Risks	FR1	0.819	0.89	0.67
	FR2	0.812		
	FR3	0.798		
	FR4	0.842		
Operational Risks	OPR1	0.837	0.9	0.68
	OPR2	0.836		
	OPR3	0.819		
	OPR4	0.815		
	SR1	0.914	0.91	0.73
Security & Privacy Risks	SR2	0.752		

	SR3	0.792		
	SR4	0.943		
Consumer Barriers	CB1	0.825	0.87	0.62
	CB2	0.77		
	CB3	0.765		
	CB4	0.781		
Consumer Inclusivity	IN1	0.805	0.88	0.64
	IN2	0.843		
	IN3	0.683		
	IN4	0.861		

The above table indicates that in convergent validity, all the constructs is under acceptable threshold with factor loadings ranging from 0.683 to 0.992. Each construct has composite reliability (CR) is varies from 0.827 to 0.94, which exceed the recommended threshold of 0.70 indicating strong internal consistency and construct reliability. Average Variance Extracted (AVE) which is above 0.5, ranging from 0.62 to 0.8. So, all the constructs are satisfied.

Discriminant Validity

Discriminant validity was also evaluated as the square root of AVE for each construct was more than the inter-construct correlations, demonstrating that each construct is distinct (Hair et al., 2019).

Table 6.46

Discriminant Validity

Construct	**FC**	**FR**	**OPR**	**SR**	**CB**	**IB**	**IN**	**TC**	**CR**
FC	**0.8**								
FR	0.104	**0.82**							
OPR	0.023	0.06	**0.82**						
SR	0.034	-0.021	-0.044	**0.85**					
CB	0.07	0.405	0.117	0.118	**0.79**				
IB	0.074	0.018	0.037	-0.021	-0.04	**0.79**			
IN	0.005	0.076	0.072	-0.16	-0.003	-0.007	**0.8**		
TC	-0.053	-0.063	0.058	0.018	-0.098	0.028	0.022	**0.79**	
CR	0.024	0.024	0.012	0.372	-0.029	-0.054	0.375	0.076	**0.89**

The value represents the square roots of AVE (√AVE) for each constructs. The Confirmatory model indicates strong discriminant validity, which ranges from 0.79 to 0.89**,** is consistently higher than the inter-construct correlations, which range from –0.160 to 0.405. This confirms that each construct is distinct and adequately differentiated from the others.

Table 6.47

Model Fit Indices of Confirmatory Analysis Model

Fit Index	**Recommended Threshold**	**Obtained Value**	**Interpretation**
χ^2/df (Chi-square)	< 3.0 (good)	2.324	Good fit
GFI	≥ 0.90 (acceptable ≥ 0.85)	0.865	Acceptable
AGFI	≥ 0.80	0.839	Acceptable
RMR	< 0.05 (good)	0.012	Good
NFI	≥ 0.90 (acceptable ≥ 0.80)	0.869	Acceptable
RFI	≥ 0.90	0.852	Acceptable
IFI	≥ 0.90	0.921	Good
TLI	≥ 0.90	0.91	Good
CFI	≥ 0.90	0.92	Good
RMSEA	< 0.08 (good), < 0.05 (excellent)	0.058	Good

From the above information, it is confirmed that, all the constructs have good internal consistency and validity and this constructs is suitable for Structural Equation Modelling.

Structural Equation Modelling

Here, Structural Equation Modelling is developed for estimating direct and indirect relationships among various constructs which hinder the effectiveness adoption of Immersive Commerce. The model reveals a impact of negative influence factors on Successful Implementation of Immersive Commerce.

Hypotheses Development

Since, the Successful Implementation of the Immersive Commerce is the central outcome of the study where it causes some constraints, risks and barriers which hinders its adoptions. All the negative factors hypothesized together in this section.

The main hypothesis for the study is;

H1: Negative impact factors have a significant negative effect on the Successful Implementation of Immersive Commerce in modern Indian retailing.

Table 6.48

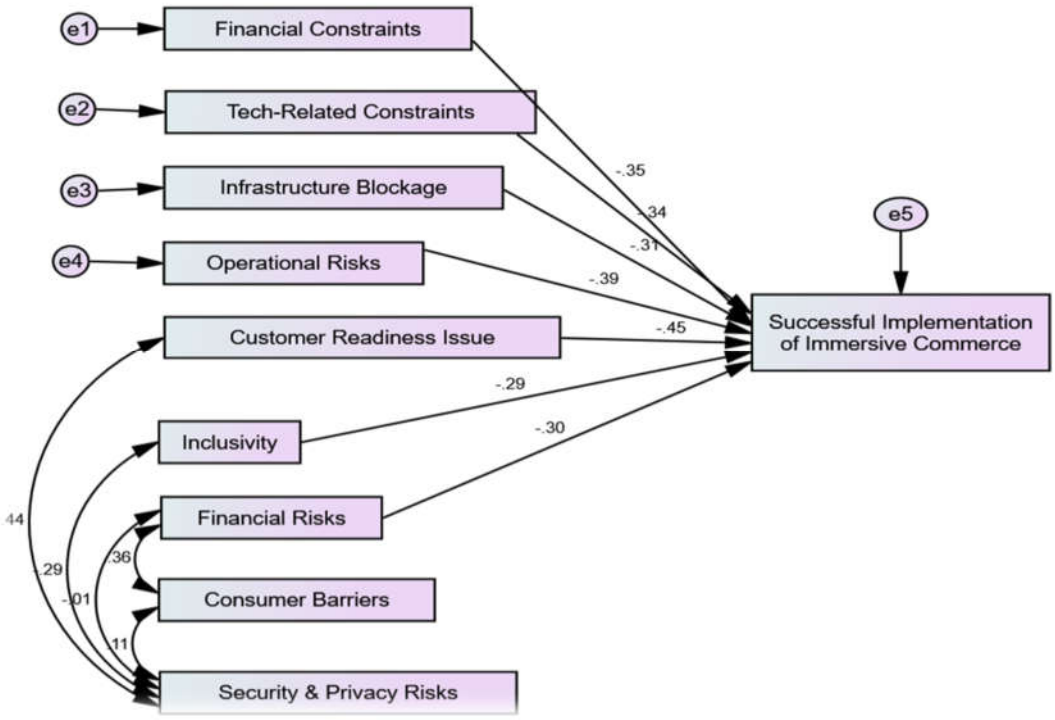
Hypotheses of Negative Impact Factors on Successful Implementation of Immersive Commerce

Sl No.	Hypotheses
H1a	Financial Constraints have a significant negative impact on the Successful Implementation of Immersive Commerce.
H1b	Tech-Related Constraints have a significant negative impact on the Successful Implementation of Immersive Commerce.
H1c	Infrastructure Blockage has a significant negative impact on the Successful Implementation of Immersive Commerce.
H1d	Customer Readiness Issues have a significant negative impact on the Successful Implementation of Immersive Commerce.
H1e	Financial risks have a significant negative impact on the Successful Implementation of Immersive Commerce.
H1f	Operational risks have a significant negative impact on the Successful Implementation of Immersive Commerce.
H1g	Inclusivity has a significant negative impact on the Successful Implementation of Immersive Commerce.

The Following figure Shows the Structural Equation Modelling, indicates the relationship among Negative Impact Factors and Successful Implementation of Immersive Commerce.

Figure 6.3

Structural Equation Modelling shows the relationship of Negative Impact Factors



The variables used in the model are;

Observed, endogenous variables

Financial Constraints

Tech-related Constraints

Infrastructure Blockage

Operational Risks

Successful Implementation of Immersive Commerce

Observed, exogenous variables

Customer Readiness Issue

Financial Risks

Consumer Barriers

Security and Privacy Risks

Inclusivity

Unobserved, exogenous variables

e1 - Error term of Financial Constraints

e2 - Error term of Tech-related Constraints

e3 – Error term of Infrastructure Blockage

e4 – Error term of Operational Risks

e5 – Error term of Successful Implementation of Immersive Commerce

Results of Hypotheses Testing

The below table shows the Hypotheses Testing results which includes the path estimates, Standard error of estimates, Critical value and Significant values.

Table 6.49

Hypothesis Testing results

Hypothesis Statement	Exogenous Variable	Endogenous Variable	Estimate	S.E.	C.R.	P-value	Std. Estimate (β)	Hypothesis Status
Financial Constraints → Successful Implementation of Immersive Commerce	FC	SIIC	-0.108	0.01	-18.78	***	-0.35	Supported

Tech-Related Constraints → Successful Implementation of Immersive Commerce	TC	SIIC	-0.104	0.01	-18.2	***	-0.339	Supported
Infrastructure Blockage → Successful Implementation of Immersive Commerce	IB	SIIC	-0.102	0.01	-16.8	***	-0.313	Supported
Customer Readiness Issue → Successful Implementation of Immersive Commerce	CR	SIIC	-0.17	0.01	-24.35	***	-0.454	Supported
Financial Risks → Successful Implementation of Immersive Commerce	FR	SIIC	-0.095	0.01	-16.19	***	-0.302	Supported
Operational Risks → Successful Implementation of Immersive Commerce	OPR	SIIC	-0.113	0.01	-20.74	***	-0.387	Supported
Customer Inclusivity → Successful Implementation of Immersive Commerce	IN	SIIC	-0.116	0.01	-15.32	***	-0.286	Supported

Source: Primary Data , *** = p-value < 0.001

The description about the results of each hypotheses testing through Structural Equation Modellling is given as follows;

Effect of Financial Constraints on Successful Implementation of Immersive Commerce

The result indicates that the retailers who suffer more financial constraints have express significantly lower confidence in Successful adoption of Immersive Commerce. The findings aligns that the financial constraints has negative impact on SIIC, where (β = –.350). Retailers often view Immersive technologies as huge capital-intensive investments, and lack of budgets which cause poor Implementations and innovations. The hypothesis is accepted and therefore, financial constraints substantially weaken retailers' perceived ability to implement Immersive Commerce effectively.

Effect of Tech-related constraints on Successful Implementation of Immersive Commerce

The result shows that the Retailers' technical challenges create substantial effect to implement Immersive Commerce technologies. The negative path coefficient (β = –.339) influence retailers' perception that system incompatibility, unreliable AR/VR performance, and limited technical standards reduce their capacity to implement Immersive Commerce. The existing literature also mentions that the complexity of technology is the primary challenge that retailers believe faces them due to the fact that Immersive platforms need qualified skills and reliable digital experiences (Sharma and Singh, 2022). From the retailers' viewpoint, overcoming such technical issues is necessary for ensuring smooth operations and customer experience. The hypothesis is supported, thus, technology-related constraints significantly reduce retailers' perceived feasibility of adopting Immersive Commerce.

Effect of Consumer Readiness Issue on Successful Implementation of Immersive Commerce

Retailers perceive customer readiness as the strongest determinant affecting Immersive Commerce Implementation. The lack of digital literacy, limited familiarity with Immersive technologies and hesitation to use new interfaces largely affect the Successful initiatives of Immersive Commerce since the beta value is a

large negative coefficient (β = –.454) . Retailers raise some concerns related to the difficulties that without customers which are technologically at the ready, then even advanced Immersive solutions will not be able to create attention or values. Hence, customer readiness issues represent the most influential negative factor shaping retailers' perceptions of Immersive technology Implementation.

Effect of Financial Risks on Successful Implementation of Immersive Commerce

Retailers also perceive financial risks as a notable constraint to adopting Immersive Commerce. The negative coefficient (β = –.302) implies that constraints regarding insufficient Return on investment, financial uncertainty, poor technology performance and potential financial losses reduce retailers' perception towards Successful Implementation. Retailers feel that Immersive Commerce may not immediately generate revenue. This knowledge will lead to the reduction of the willingness to implement Immersive technologies before it is insured that there will be a definite financial outcome. Thus, financial risk perceptions have a meaningful negative impact on adoption feasibility.

Effect of Operational Risks on Successful Implementation of Immersive Commerce

The results indicate that the Retailers perceive operational risks has negative effect ((β = –.387) on the effectiveness of Immersive Commerce. The major impediments that the retailers faced on the operational risk are operational disruptions, risky systems, and poor maintenance and tech breakdowns. This will consider as the substantial hindrance indicates that retailers associate operational constraints leads to reduced confidence in the Successful Implementation and deployment of Immersive technologies. The hypothesis is supported and hence operational risks significantly diminish retailers' perceived ability to implement Immersive Commerce smoothly. So, the Immersive Commerce requires a high level of reliability in operational maintenance and any breakdowns can quickly affect trust in the Immersive system.

Effect of Customer Inclusivity Issues on Successful Implementation of Immersive Commerce

There is a negative relationship between retailers perception towards inclusivity issue and Successful Implementation of Immersive Commerce Retailers perceive inclusivity issues such as hard usage to some group of retailers, usability challenges for elderly people, differently abled individuals, or users with low digital literacy because of language and culture as barriers that hinder Immersive Commerce Implementation. The negative relationship (β = –.286) confirming that retailers believe Immersive systems must be accessible to diverse customer groups, not for differentiated targeting to ensure Successful adoption. This led to lower customer engagement and limited deployment of Immersive. Thus, inclusivity issues moderately reduce retailers' perceived ability to execute Immersive technologies successfully.

Effect of Infrastructure Blockage on Successful Implementation of Immersive Commerce

The negative value (-.313) indicates that the retailers' perception on the constraint of infrastructure is a key requirement in the performance of the Immersive technology. Infrastructural blockage like poor internet connection, limited digital infrastructure in the store, and insufficient hardware support is perceived as a major impediment to Immersive Commerce by retailers. The negative correlation (β = -.313) indicates that retailers feel that infrastructure preparedness is essential to the performance of Immersive technology. On the side of the retailers, the Immersive experiences are not possible as they are because of ineffective high-speed networks and devices. As such, blockages in infrastructure have significant implications of negatively affecting the perceived probability of the Successful Implementation of Immersive Commerce by retailers.

The covariance analysis demonstrates that Customer Readiness Issues, Financial Risks, and Inclusiveness challenges, but not Consumer Barriers, affect security and privacy risks in immersive commerce most of all. The Customer Readiness Issues

exhibit the most significant association rates, which means that low digital literacy, inadequate exposure to immersive technologies, and the lack of trust are key factors contributing to an increase in the level of security and privacy concerns. Another effective relationship is observed between Financial Risks, which could indicate that the uncertainty associated with the investments, the likelihood of having lost money, and the exposure to frauds contribute to the increased fears of data protection and the cyber threats. The issue of inclusivity also adds to this by instilling a sense of vulnerability in digitally marginalized or excluded user groups, which fosters the anxieties of privacy and security. Conversely, the Covariance of Consumer Barriers with Financial Risks and Security and Privacy risks is less than 0.12, so resistance to change or awareness gaps alone will not raise risk perceptions unless supported by the readiness, inclusivity, or financial issues. Taken together, these results highlight the importance of enhancing customer willingness, enhancing inclusivity, and reducing financial risks to address security and privacy issues and ensure the successful adoption of immersive commerce in contemporary retailing.

6.9 Conclusion

This chapter concludes that the Successful Implementation of Immersive Commerce in modern Indian retailing is significantly constrained by multiple negative impact factors, including financial constraints, technology-related and infrastructural limitations, customer readiness issues, operational risks, security and privacy concerns, and inclusivity barriers. The findings indicate that these challenges are largely systemic and uniformly experienced across retailers, regardless of demographic or firm-specific characteristics, though variations exist in perceptions of customer readiness, security, and inclusivity. Structural Equation Modelling confirms that all identified negative factors have a significant adverse effect on Successful Implementation, with customer readiness and operational risks exerting the strongest influence. Overall, unless these challenges, risks, and barriers are strategically addressed, Immersive Commerce adoption is likely to remain cautious, limited, and unsustainable in the Indian retail context.

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CHAPTER 7

SUMMARY, FINDINGS AND CONCLUSIONS

- *Introduction*
- *Research Problem in Brief*
- *Methodological Design*
- *Summary of Chapters*
- *Major Findings*
- *Conclusion*

Anoop, P. Opportunities and challenges of implementing immersive commerce strategy in modern Indian retailing. Thesis.2026. Farook College (Autonomous), University of Calicut.

7.1 Introduction

Immersive Commerce is considered as a strategic approach for strengthening competitiveness in the evolving Indian retail landscape rather than as a mere technological novelty. Retailers largely perceive Immersive Commerce as a means to enhance customer interaction, improve product understanding, and create engaging shopping environments that blend the advantages of physical and digital retailing. The retailers recognize a clear shift in consumer expectations toward experience-oriented shopping, where engagement, visualization, and interactivity has a prominent role in influencing the purchase decisions. As a result, Immersive Commerce is seen as a valuable pathway for retailers to differentiate their offerings, reinforce brand presence, and remain relevant in an increasingly technology-driven market.

At the same time, the retailers adopt a cautious and pragmatic outlook toward Immersive Commerce Implementation. Rather than expecting immediate financial gains, retailers generally view Immersive Commerce as a long-term investment that contributes to sustained customer relationships and gradual performance improvement. This perspective leads retailers to carefully evaluate costs, operational feasibility, and alignment with existing business models before adopting Immersive solutions. Many retailers prefer phased or selective Implementation, testing Immersive applications in specific product categories or locations before wider rollout. This approach reflects a strong emphasis on strategic fit and organizational readiness, suggesting that successful Immersive Commerce adoption depends as much on managerial planning as on technological capability.

Retailers also perceive Immersive Commerce as a tool that can significantly influence customer decision-making by reducing uncertainty and increasing confidence during the shopping process. The ability to present products in interactive and realistic formats is viewed as particularly beneficial in minimizing hesitation and improving satisfaction. However, retailers emphasize that these benefits are contingent upon seamless execution. The findings show that technical instability, poor interface design, or inconsistent performance can undermine

customer trust and negatively affect brand image. Consequently, retailers stress the importance of reliability, ease of use, and smooth integration of Immersive features into everyday retail operations.

Risk awareness emerges as a central theme in shaping retailers' attitudes toward Immersive Commerce. Retailers express concerns related to financial exposure, operational disruption, and data security especially as Immersive technologies rely heavily on digital platforms and customer data. These risks encourage retailers to adopt more structured planning, careful vendor selection, and stronger control mechanisms. Rather than deterring adoption, such concerns often promote a more disciplined and measured approach, where Immersive Commerce is implemented with clear oversight and performance monitoring.

The retailers also pointed out the need to balance innovation with inclusivity. Retailers acknowledge that while Immersive Commerce appeals strongly to technologically confident customers, it may not be equally accessible to all consumer segments. The findings suggest that retailers are mindful of avoiding customer exclusion by maintaining alternative shopping options and ensuring that Immersive experiences complement rather than replace traditional retail interactions. This inclusive mindset reflects retailers' understanding of India's diverse consumer base and varying levels of digital readiness.

Finally, the outcomes of Immersive Commerce are closely tied to the broader Indian retail context. Differences in infrastructure quality, regional digital maturity, and market conditions influence how effectively immersive strategies can be implemented. Retailers recognize the importance of adapting Immersive Commerce initiatives to local realities rather than applying uniform strategies across locations. In summary, from the retailers' perspective, the major findings position Immersive Commerce as a promising but demanding strategic initiative one that offers meaningful opportunities for enhanced customer engagement and differentiation, while requiring careful planning, risk management, and contextual sensitivity to achieve sustainable success in modern Indian retailing.

7.2 Research Problem in Brief

Immersive Commerce has resulted as a transformative force in global retailing, particularly in developed markets where retailers increasingly deploy advanced digital technologies to create interactive, experiential, and engaging shopping environments. In these contexts, Immersive tools are strategically used to enhance product understanding, personalize customer journeys, reduce purchase uncertainty, and strengthen brand differentiation. However, despite India being one of the fastest-growing retail and digital consumer markets, the strategic application of Immersive Commerce within Indian retail remains limited, fragmented, and insufficiently understood. A substantial portion of existing scholarly work and industry-driven insights is concentrated on western economies, where consumer behaviour, technological infrastructure, purchasing power, and regulatory environments differ markedly from those in India. As a result, the applicability of such findings to the Indian retail ecosystem is questionable. Indian retail is characterized by extreme heterogeneity, encompassing organised and unorganised formats, wide urban–rural disparities, varied levels of digital literacy, and uneven technological and infrastructural readiness. The absence of India-specific empirical evidence creates a critical knowledge gap regarding how Immersive Commerce can be effectively leveraged to enhance experiential value, strengthen product presentation, and influence consumer responses in such a complex environment. Retailers therefore lack clarity on whether Immersive Commerce can meaningfully improve shopping experiences and business outcomes or whether it remains a high-risk technological investment with uncertain relevance to diverse Indian consumers.

This research problem is further intensified by the strategic and operational dilemmas faced by Indian retailers in the context of digital transformation. Many retailers are under pressure to adopt advanced technologies to remain competitive, yet they often operate with constrained financial resources, limited technological capabilities, and inadequate digital infrastructure. Without clear, context-specific guidance, Immersive Commerce initiatives may be adopted in a trial-and-error manner, leading to disjointed Implementation, underutilisation of technology, and

low returns on investment. Retailers also face uncertainty regarding consumer readiness, trust, and engagement with Immersive technologies, particularly in semi-urban and rural markets where exposure to advanced digital interfaces is still evolving. Additionally, concerns related to system reliability, operational disruptions, data security, and inclusivity raise further hesitation toward large-scale adoption. The lack of systematic research examining both the opportunity-driven and challenge-driven dimensions of Immersive Commerce in Indian retail leaves retailers vulnerable to strategic misalignment and competitive disadvantage. Therefore, there is a pressing need for a comprehensive investigation that captures the Indian retail perspective, evaluates the influence of Immersive Commerce on customer experience and business performance, and assesses the interplay between opportunities, constraints, and risks. Addressing this research problem is essential not only to bridge the existing literature gap but also to provide actionable insights that can support informed decision-making, sustainable digital investments, and the long-term positioning of Indian retailers in an increasingly Immersive global retail landscape.

The objectives were re-capitulated as follows;

- To examine the retailers' perceived opportunities that facilitates the Successful Implementation of Immersive Commerce in the retail sector.
- To assess retailers' perception towards Customer Loyalty in Immersive Commerce.
- To analyze the impact of Immersive Commerce on retail business performance.
- To identify the future potentials of Immersive Commerce in reshaping their innovation and growth.
- To identify key operational and strategic challenges faced by retailers in implementing Immersive Commerce.

7.3 Methodological Design

The researcher adopted in the study is descriptive. Both the primary data and secondary data were collected for data integration and analysis. The secondary data were collected from various reports of Academic Journals, research papers, market research databases, company reports, retail tech summits, websites etc.,

The primary data were collected from the retailers who is in familiarization or adoption of Immersive Commerce including owners, franchise partners, managers etc., in various part of India on tier level basis. The sample respondents includes 390 respondents covering 253 respondents from Tier 1cities like Bengaluru, Mumbai, Delhi NCR, Hyderabad, Pune and Chennai and Tier 2 cities like Ahamedabad, Indore, Jaipur, Kochi/Trivandrum, Coimbatore, Bhubaneswar . The samples are collected from the various categories of retail viz., Apparels and Fashions, Electronics and Gadgets, Grocery and FMCG, Furniture and Home Decor, Beauty and Health Care etc., A Proportionate Stratified Sampling Design is used in the study to ensure that the selected respondents accurately represent the diverse characteristics of the Indian retail sector. The well structure questionnaire is used for the research for the data requirements. Before the finalization of questions, a pilot study has been conducted among respondents from Kochi/Trivandrum and Coimbatore. Suitable modifications have been made and finalized the tools. Reliability and Validity tests have also been conducted.

The Data so collected were analysed with the help of SPSS and AMOS. The various tools like percentage, mean, rank, standard deviation, t-test,correlation analysis, regression analysis, ANOVA, Tukey's HSD test, MANOVA etc., were also employed for the analysis of the data.

7.4 Summary of Chapters

The study titled "Opportunities and Challenges of Implementing Immersive Commerce Strategy in Modern Indian Retailing" has been presented in seven chapters. The first chapter deals with the introduction and contains information about the research problem, objectives, hypotheses, significance, scope and

limitations of the study. The second chapter deals with the review of literature about the current study in detail and the gap of literature is identified. A brief summary of theoretical foundations of Immersive Commerce and Indian retail industry is provided in the third chapter, with the help of secondary data reports. In fourth chapter, details of research methodology is drawn based on the research design, source of data, population of the study, sampling design, tools for data collection and analysis, variables used for the study, the pilot study conducted , the normality, reliability and validity assessment conducted are shown. The fifth chapter attempts to analyse of positive impact factors that influence the Successful Implementation of Immersive Commerce, where as the sixth chapter, with the analysis of negative impact factors that affect the Implementation of Immersive Commerce. The seventh chapter presents major summary, findings and conclusions. And finally, the last chapter contains recommendations, implications and scope for further research on the topic.

7.5 Major Findings

The major findings of the study are briefly explained as below;

7.5.1 Frequency Distribution of Retailer

This section deals with the frequency distribution of categorical variables (demographic and retail characteristics) used in the study. The detailed explanation of each variables is explained below based on frequency distribution and percentage analysis. This is divided into two parts; the frequency distribution of demographic characteristics and the frequency distribution of retail characteristics.

Frequency Distribution of Demographic Characteristics

1. The sample is composed mostly of male retailers as they constitute 69.7% (252 respondents). The female retailers are 30.3 per cent (138 respondents) with no respondents expressing any other gender categories. This shows that the retail sector due to the sample is mostly dominated by men.

2. The majority of the respondents are between 18 and 40 years, which comprises 66.9% (261 retailers). The age of the retailers is 41-60 years (30.8) and 2.3 years (9) are above 60 years. This indicates that the sample population that is surveyed as retailers is largely composed of young and middle-aged people.

3. The educational profile indicates that 56.7% (221 respondents) have professional degree and 30.3% (113 respondents) of the educational profile possessed a master degree. There are 9 percent (35 respondents) degree holders, a small percentage with schooling or less (1.3), diploma qualifications (1), and Ph.D. degrees (2.8). In general, the sample is very well-educated, and most of them have advanced or professional degrees.

4. The most prominent group of respondents is the 44.9 percent (175) owners of their retail businesses. The proportion of managers is 27.9 (109 respondents) and that of franchise partners is 19 (74 respondents). The other 8.2 percent (32 respondents) are under other labels. This means that there is a high representation at decision making positions in the retail industry.

5. The majority of the respondents possess 4-7 years of retailing experience in the range of 4-7 years (41.5 percent or 162 participants), then 38.7 percent (151 respondents) with 8-10 years of experience. The group of retailers with experience of 1-3 years experience comprises 12.8% (50 respondents), new entrants (less than one year experience) make up 2.8% and highly experienced respondents (greater than 10 years experience) make up 4.2%. This indicates that the sample is dominated with experienced middle-level retailers.

Frequency Distribution of Retail Characteristics

1. Most of the respondents work on the Omni-channel format (58.5% or 228 retailers), then there are 36.9% (144 retailers) e-Commerce/m-Commerce retailers. The traditional brick-and-mortar stores are only 4.6 percent (18

respondents). The results indicate that the majority of the sampled retailers have been adopting integrated or digital retail format.

2. The most significant category is those retailers whose yearly turnover is 1-5 crore, 33.3 percent (131 respondents). This is constituted by 510 crore turnover retailers at 23.1 (89 respondents) then the 50-lakh to 1 crore retailers at 20.5 (79 respondents). Retailers whose turnover is less than 50 lakh constitute 5.1 (21 respondents) and 17.9 (70 respondents) are above 10 crore turnover. The distribution shows that majority of the respondents are in the medium-scale business.

3. The respondents are evenly distributed among the prominent Indian cities (Tier1 and Tier 2) with the highest representation of Kochi/Trivandrum (13.8, 54 respondents), Bengaluru (13.3, 52 respondents) and Coimbatore (11.5, 45 respondents). Delhi NCR has its share of 11% (43 respondents), unlike other places like Mumbai, Hyderabad, Chennai, Ahmedabad, Jaipur, Pune and Indore which have moderately contributed. The lowest representation is that of Bhubaneswar which is 2.8% (11 respondents). The sample is geographically varied in big retail centers.

4. The biggest segment is the apparel and fashion one with at 27% (105 respondents) and the grocery and FMCG with 25% (97 respondents). Retailers of furniture and home decor constitute 21 percent (82 respondents), and electronic and gadgets constitute 9 percent (36 respondents). The percentage of beauty and healthcare retailers is 6% (24 respondents) as well as 12% (46 respondents) of other types of business. It means that it has large coverage in large retail segments with a good representation of fashion and grocery.

7.5.2 Descriptive Statistics of Positive Impact factors like Opportunities, Customer loyalty, Business performance and Future potentials

Descriptive Statistics of Opportunities

1. The mean scores for Experiential Enhancement range from 4.40 to 4.48, showing strong agreement that Immersive Commerce greatly enriches customer experience. With low SD values (.491–.500), the responses are highly consistent across indicators. Overall, retailers perceive Immersive tools as highly effective in enhancing engagement, satisfaction, and memorability.

2. Product Positioning shows mean values ranging from 4.30 to 4.44, indicating strong retailer agreement that Immersive Commerce improves product display and communication. The SD range (.467–.507) reflects low variability, suggesting uniform positive perceptions. Overall, the construct highlights Immersive Commerce as a valuable tool for innovative and clearer product presentation.

Descriptive Statistics of Customer Loyalty

1. Perceived value received moderate agreement, with mean scores ranging from 3.66 to 3.69 and SD values between 0.615 and 0.651. Retailers believe Immersive Commerce is useful and adds value, though perceptions remain moderate. Overall, Immersive tools are seen as beneficial but not strongly impactful.

2. Customer engagement indicators show positive responses, with means ranging from 3.66 to 3.73 and SDs between 0.622 and 0.672**.** Retailers feel AR/VR features effectively capture customer attention and involvement. Engagement is generally good, although interaction depth varies slightly.

3. Reliability scored high among respondents, with mean values from 4.04 to 4.48 and SDs between 0.491 and 0.501. Retailers strongly trust the accuracy

and performance of Immersive systems. This indicates that reliability is a major strength of Immersive Commerce.

Descriptive Statistics of Business Performance

1. Sales growth indicators show strong agreement, with mean scores ranging from 4.28 to 4.77 and SD values between 0.493 and 0.661. Retailers believe Immersive Commerce significantly boosts purchases, especially through enhanced product visualization and upselling. Overall, Immersive features are perceived to directly support higher sales conversions.

2. Customer retention received moderate agreement, with mean scores ranging from 3.66 to 3.71 and SD values between 0.598 and 0.633. Respondents feel Immersive features encourage repeat visits and help build long-term customer relationships. Retention improves mainly through personalized and engaging Immersive experiences.

3. Trend adaptation shows moderate positive perceptions, with mean values ranging from 3.68 to 3.74 and SD values between 0.635 and 0.668. Retailers believe Immersive Commerce helps them stay competitive and innovative. Adoption is influenced both by internal innovation goals and competitor pressure.

Descriptive Statistics of Future Potentials

1. The results indicate that retailers show a high level of Innovation Capability, with mean scores ranging from 4.35 to 4.47 and standard deviations between 0.49 and 0.537, reflecting strong agreement on continuous experimentation with Immersive technologies. Respondents consistently acknowledged the importance of innovation in their Immersive Commerce strategy, supported by active exploration of new digital solutions. Overall, the low SD values show that perceptions are highly uniform across the sample.

2. The findings reveal that retailers perceive strong Growth Potential in Immersive Commerce, with mean values ranging from 4.31 to 4.38 and SDs

between 0.472 and 0.485, indicating high consensus regarding its future advantages. Respondents believe Immersive Commerce can drive long-term growth, open new revenue channels, and support market expansion. The consistently high mean scores suggest that retailers have a positive outlook toward the future scalability and promise of Immersive Commerce.

7.5.3 Descriptive Statistics of Negative Impact Factors like Challenges, risks and barriers

Descriptive Statistics of Challenges

1. Financial Constraints show moderate agreement among retailers, with mean scores ranging from 3.66 to 3.69 and SDs between 0.615 and 0.651. The results indicate that high investment costs, unclear ROI, and financial risks are notable barriers to Immersive Commerce adoption. Overall, financial limitations remain a challenge restricting expansion and Implementation.

2. Tech-related Constraints also present moderate concern, with mean values from 3.66 to 3.73 and SDs between 0.623 and 0.672. Retailers highlight issues such as limited access to advanced tools, technical disruptions, low internal expertise, and reliance on external partners. These findings suggest that technological readiness significantly affects the quality and consistency of Immersive Commerce Implementation.

3. Infrastructure Blockage shows moderate challenge levels, with mean scores from 3.61 to 3.63 and SD values between 0.591 and 0.621. Respondents agree that existing store layouts, physical space constraints, and inadequate digital infrastructure hinder Immersive technology integration. The results indicate that substantial infrastructural upgrades are needed for smooth adoption.

4. Consumer Readiness Issues have very high agreement, with mean values from 4.61 to 4.77 and SDs ranging between 0.447 and 0.509. Customers' unfamiliarity with Immersive tools, hesitation, and lack of awareness especially among elderly shoppersemerge as the strongest barriers. These

findings show that consumer-side limitations are the most significant challenge affecting Immersive Commerce usage.

Descriptive Statistics of Risks and Barriers

1. Financial Risks show moderate concern among retailers, with mean scores ranging from 3.66 to 3.71 and SD values between 0.598 and 0.633. Respondents feel uncertain about ROI and worry about potential revenue loss due to poor technological performance. Overall, financial risk remains a notable deterrent to Immersive Commerce investments.

2. Operational Risks also show moderate agreement, with mean values ranging from 3.69 to 3.74 and SDs between 0.635 and 0.668. Retailers express concerns about system failures, risky integration, constant maintenance needs, and lack of SOPs for tech breakdowns. These results indicate that operational instability poses a significant barrier to smooth Implementation.

3. Security and Privacy Risks show strong agreement, with high mean scores from 4.35 to 4.47 and SD values between 0.490 and 0.537. Retailers are highly concerned about data security, cyber threats, and the absence of uniform cybersecurity standards in Immersive systems. The findings reveal that privacy and protection issues are among the most critical risks affecting adoption.

4. Consumer Inclusivity challenges also show high agreement, with mean values ranging from 4.31 to 4.37 and SDs between 0.472 and 0.495. Retailers recognize accessibility issues for certain groups, including people with disabilities, and cultural or language-related barriers. Overall, inclusivity remains a major concern in ensuring equal access to Immersive Commerce.

5. Consumer Barriers reflect moderate challenge levels, with mean scores ranging from 3.68 to 3.70 and SD values between 0.583 and 0.613. Retailers note that limited interest, low digital skills, resistance to change, and skepticism reduce customer engagement with Immersive tools. These results

suggest that consumer attitudes and digital readiness affect the pace of adoption.

7.5.4 Relationship between Experiential Enhancement and Product Positioning

The correlation analysis of the opportunities dimension shows that there is a moderate positive relationship between Experiential Enhancement and Product Positioning ($r = 0.418$, $p = 0.001$). This implies that when there are improvements in experiences augmentation, product positioning is also enhanced. The statistically significant p-value supports the fact that this association cannot be explained by the chance. The results on the whole show some distinct associative picture concerning the two opportunity-dependent variables in the research.

The experiential enhancement **(**$\beta = 0.347$, $p < .001$) and product positioning ($\beta = 0.306$, $p < .001$**)** both have a positive and significant influence on the successful implementation of immersive commerce in Indian retail. Experiential enhancement emerged as the stronger driver, highlighting the importance of immersive and engaging customer experiences in supporting effective implementation.

7.5.5 Multiple Regressions between the constructs of Customer Loyalty

The regression output shows that the predictor that is statistically significant is the Perceived Value whose unstandardized coefficient is of the value of B = 0.333, standardized beta = 0.441 and a p-value that is extremely significant (p = less than 0.001), hence showing a strong positive influence on the outcome variable. Customer Engagement also became one of the key predictors, having a greater standardized beta of 0.659 and a significant p-value of well below the significance level ($p < .001$) than the other covariates, implying that it has the strongest impact among the covariates. On the same note, the Reliability showed a significant impact, whereby, B = 0.333, 0.620 standardized beta, and significant p-value ($p < .001$) validated its high predictability ability. Taken together, the three variables Perceived Value, Customer Engagement and Reliability have a significant level of statistical significance and positive impacts on the dependent variable and thus, each of the predictors has a significant impact on the dependent variable in the model.

7.5.6 Multivariate analysis of Business performance

The multivariate analysis displaying the Successful Implementation of Immersive Commerce (SIIC) as the predictor, showed a statistically significant multivariate effect of the predictor on the aggregate variables of business performance Sales Growth, Customer Retention, and Trend Adaptation in each of the four canonical multivariate tests: Pillai Trace, Wilks Lambda, Hotelling Trace, and Roy Root, with $p <. 001$.

Besides, the univariate tests revealed that SIIC had a significant effect on all the individual business performance constructs, where Sales Growth ($F = 6.464$, $p < .001$), Customer Retention ($F = 2.706$, $p < .001$), and Trend Adaptation ($F = 3.576$, $p < .001$) all were statistically significant.

A significant level of Sales Growth variance was explained by the model ($R 2 =.397$), Trend Adaptation ($R 2 =.267$), and Customer Retention ($R 2 =.216$) as was found to have varied levels of predictive value.

7.5.7 Effect of Growth Potentials on Retail format, Annual Turnover, Location and Category of Retail

Retail format on Innovation Capability

The ANOVA test examining the effect of retail format on Innovation Capability showed no statistically significant difference among the groups ($F = 0.017$, $df = 2,387$, $p = 0.983$). The between-group variance was extremely low (Sum of Squares = 0.007, Mean Square = 0.003) compared with the within-group variance (Sum of Squares = 79.137, Mean Square = 0.204). This indicates that innovation capability scores were highly similar across all retail formats.

Annual Turnover on Innovation Capability

The ANOVA table of Annual Turnover on Innovation Capability reveals that the between-group Sum of Squares is 0.617, 4 degrees of freedom and its Mean Square is 0.154. The within-group Sum of Squares is 78.527 with 385 degrees of freedom giving an output of Mean Square of 0.204. The overall variation obtained is 79.144

in 389 cases. The analysis produced an F-value of 0.757 where the significance value was 0.554.

Location on Innovation Capability

The ANOVA analysis of the relationship between Location and Innovation Capability resulted in the between-group Sum of Squares (SS) of 4.003 with 11 degrees of freedom (df) with a resultant Mean Square (MS) of 0.364. Within-group SS= 75.142/378 df=0.199 within-group MS. In the 389 observations, the cumulative SS in the dataset was 79.144. Therefore, the F-statistic was equal to 1.830, and the p-value was also statistically significant (at the 0.047 level).

The multiple comparison outcomes show that there is no statistically significant difference between any two locations concerning Innovation Capability since all the p-values are more than .05. Although some of the differences of means are slightly greater in case of pairwise comparison (e.g., Delhi NCR vs. Pune), these differences of means are not substantive. In turn, the concept of Innovation Capability is generally homogeneous in the context of the reviewed urban environments, which indicates that the geographical location is not a major factor that can affect the levels of innovation of the retailers operating in the sphere of Immersive Commerce.

Category of Retail on Innovation Capability

The ANOVA results of the effect of Category of Retail on Innovation Capability show that the between-group variance is very small ($F = 0.519$, $p = 0.762$), indicating no significant differences across retail categories. The mean square values reveal that most of the variation in innovation capability occurs within groups rather than between them. Since the p-value is far greater than 0.05, retail category does not appear to influence how retailers perceive or adopt innovation capability in Immersive Commerce. Overall, innovation capability is similar across different types of retail formats.

Retail Format on Growth Potentials

The ANOVA results indicates that retail format do not significantly influence Growth Potentials, as shown by an extremely low F-value (F = 0.010) and a non-significant p-value (p = .990). The between-group variance (.004) is negligible compared to the within-group variance (81.384), suggesting that Growth Potentials show similar across retail formats. Overall, the findings confirm that retail format has no meaningful effect on retailers' perceived Growth Potential in Immersive Commerce.

Annual Turnover on Growth Potentials

The ANOVA results indicate that annual turnover does not have a significant effect on Growth Potentials, as shown by the low F-value (F = 0.531) and the non-significant p-value (p = .713). The between-group variation (.447) is very small compared to the within-group variation (80.941), suggesting differences across turnover categories. This means retailers, regardless of their turnover size, perceive Growth Potentials almost similarly. Overall, annual turnover is not a determining factor influencing Growth Potential in the context of Immersive Commerce.

Location on Growth Potentials

The ANOVA results indicate a significant difference in Growth Potentials across different locations, as indicated by the F-value of 2.125 and p-value (p = .018). The between-group variance (4.740) is higher, suggesting meaningful dissimilarity across cities or regions. This implies that retailers' perception of Growth Potential differ depending on their location. In fact, the location emerges as an important factor influencing retailers view on Growth Potential of Immersive Commerce.

The multiple comparison results reveal that none of the pairwise differences between locations are statistically significant, as all p-values are above 0.05. Some locations display small mean score variation in Innovation Capability, the confidence intervals for all pairs include zero, indicating no meaningful differences across cities. This suggests that retailers across different locations perceive similar Innovation

Capability. Overall, location does not have significant differences in Innovation Capability of the firm.

Category of Retail on Growth Potentials

The ANOVA results indicate that the category of retail does not significantly influence Growth Potentials, as shown by the low F-value (F = 0.531) and the non-significant p-value (p = .713). The between-group variance (0.447) is minimal compared to the within-group variance (80.941), suggesting very small difference across retail categories. This indicates that retailers as well as the firm perceive Growth Potentials almost uniformly. Overall, retail category is not a determining factor in shaping Growth Potential in the context of Immersive Commerce.

7.5.8 Relationship of Positive Impact factors on Successful Implementation of Immersive Commerce

1. The findings show that Experiential Enhancement has a significant effect on Successful Implementation of Immersive Commerce. The standardized estimate for this path is β = 0.287. The critical ratio recorded is 8.267. The p-value is less than 0.001, confirming statistical significance.

2. The results indicate that Product Positioning significantly predicts Successful Implementation of Immersive Commerce. The standardized estimate is β = –0.14. The critical ratio is –4.191. The p-value is less than 0.001, confirming that the effect is statistically significant.

3. Perceived Value shows a statistically significant effect on Successful Implementation of Immersive Commerce. The standardized coefficient for this relationship is β = 0.198. The critical ratio value is 3.017. The p-value of 0.003 indicates that the effect is significant.

4. Sales Growth has a significant influence on Successful Implementation of Immersive Commerce. The standardized estimate obtained is β = 0.461. The critical ratio value for this path is 10.64. The p-value is below 0.001, confirming significance.

5. Innovation Capability significantly affects Successful Implementation of Immersive Commerce. The standardized estimate is β = 0.701. The critical ratio recorded is 10.51. The p-value is less than 0.001, confirming statistical significance.

6. Innovation Capability does not significantly affect Reliability. The standardized estimate is β = –0.019. The critical ratio is –0.379. The p-value of 0.705 indicates no statistical significance.

7. Perceived Value demonstrates a significant effect on Experiential Enhancement. The standardized coefficient is β = –0.111. The critical ratio obtained is –3.001. The p-value is 0.003, confirming significance.

8. Experiential Enhancement does not significantly influence Product Positioning. The standardized estimate is β = –0.209. The critical ratio is –1.44. The p-value of 0.15 indicates the absence of significance.

9. Innovation Capability shows a significant effect on Perceived Value. The standardized estimate reported is β = 0.729. The critical ratio is 11.55. The p-value is less than 0.001, confirming statistical significance.

10. Growth Potentials significantly affect Sales Growth. The standardized estimate for this path is β = –0.142. The critical ratio recorded is –3.451. The p-value is less than 0.001, confirming significance.

11. Product Positioning significantly influences Sales Growth. The standardized estimate for this relationship is β = 0.736. The critical ratio recorded is 11.98. The p-value is less than 0.001, confirming statistical significance.

12. Growth Potentials have a significant effect on Innovation Capability. The standardized estimate is β = 0.868. The critical ratio obtained is 21.14. The p-value is less than 0.001, confirming statistical significance.

13. Sales Growth significantly predicts Experiential Enhancement. The standardized coefficient is β = 0.753. The critical ratio is 12.38. The p-value is less than 0.001, establishing significance.

14. Perceived Value significantly influences Growth Potentials. The standardized estimate reported is β = 0.539. The critical ratio is 4.511. The p-value is less than 0.001, confirming significance.

15. Sales Growth significantly affects Growth Potentials. The standardized estimate for this path is β = –0.105. The critical ratio recorded is –5.054. The p-value is below 0.001, confirming statistical significance.

16. Innovation Capability has a marginal effect on Growth Potentials. The standardized estimate is β = 0.272. The critical ratio reported is 1.942. The p-value of 0.052 indicates borderlines significance.

7.5.9 Findings Based on Negative Impact Factors that affects the Successful implementation of Immersive Commerce.

Gender Wise Analysis on Challenges

1. The Independent Sample t-test shows a significant gender difference in Financial Constraints (t = 2.246, p = 0.025). Male retailers reported higher mean financial constraints (M = 2.3681) compared to female retailers (M = 2.2391). This reveals that men perceive financial barriers to Immersive Commerce adoption more strongly than women. The results confirm that gender plays a meaningful role in shaping perceptions of financial burden associated with implementing Immersive technologies.

2. The t-test results show no significant difference between male and female retailers in Tech-Related Constraints (t = –0.346, p = 0.729). The mean values of both groups (Male = 2.3006, Female = 2.3207) are very close, indicating similar levels of perceived technological challenges. This suggests that technology-related issues are experienced uniformly across genders. Overall, gender does not influence the perception of technical barriers in Immersive Commerce adoption.

3. The findings indicate no significant gender difference in Infrastructure Blockage (t = 0.442, p = 0.659). Both male and female retailers report almost

identical mean scores (Male = 2.3919, Female = 2.3678), showing consistent perceptions across groups. This suggests that infrastructural limitations such as network quality, device support, and hardware setup issues affect both genders equally. The results imply that infrastructure-related barriers are universal and not gender-dependent.

4. The t-test shows no significant difference between genders regarding Consumer Readiness Issues (t = 1.690, p = 0.092). Although the mean score is slightly higher for males (1.3681) than females (1.2880), the difference is not statistically meaningful. This indicates that both groups perceive consumer preparedness for Immersive Commerce at similar levels. Overall, the findings show that gender does not influence concerns regarding customer awareness, willingness, or comfort with Immersive technologies.

Age-wise Findings on Challenges

1. The age-based review of Financial Constraints shows that the age groups have no statistically significant difference between them (F = 0.073, p = 0.929). Retailers aged between 18 and 60 (Mean = 2.3228, 2.3167 and 2.3889 respectively) have a similar mean score of their perceived financial challenges though there is always a similarity of the mean score perception. The F-value is low hence showing minimal variation among groups of ages. Therefore, the financial limitations are viewed equally amongst the various age groups.

2. Tech-Related Constraints, on the other hand, indicate that there is a statistically significant difference by age (F = 3.176, p = 0.043). The mean score is highest among the retailers in the 18-40 age group (Mean = 2.3352), then it is followed by the 41-60 age group (Mean = 2.2792), and then by the 60+ age group (Mean = 1.8889). This implies that the challenges involved in the use of technology are perceived to be more among the younger retailers than the older retailers. The high F-value indicates that age is a big determinant with respect to perceptions of technological constraints.

3. In the case of Infrastructure Blockage, the findings do not show any significant difference across the age groups (F = 1.778, p = 0.170). Though there is a slight increase in the mean score with age 18-40(Mean= 2.3544), 41-60(Mean= 2.4292), and 60 and above (Mean= 2.6111) the differences are not statistically significant. The standard deviations are also an indication of moderate variability in groups. In general, the problems of infrastructures are equally felt within the age brackets.

4. Customer Readiness Issue Analysis shows that there is statistically significant difference according to the age group (F = 5.261, p = 0.006). The youngest age group (18 40) has the highest mean score (Mean = 1.3889), 41 60 group has the second highest mean score (Mean = 1.2500) and the last group (60 60) has the least mean score (Mean = 1.1111). This trend indicates that the older a person is, the lower the level of perceived customer readiness problem. The high p-value supports the idea that age is a factor that can be of the essence when it comes to the formulation of opinions regarding the issue of customer readiness.

Educational Qualification wise analysis on Challenges

1. As shown, the results of the ANOVA show that the levels of financial constraints do not significantly vary between the categories of educational qualifications (F = 0.947, p = 0.451). Even though some differences in the mean scores can be seen, with the lowest scale of 2.00 with Plus Two/Diploma holders and the higher of 2.38 with the holders of Master degrees, the differences are not significant. Respondents of all levels of education experience a similar and moderate perception of financial barriers to Immersive Commerce Implementation. This implies that the level of education is not a decisive factor in determining the perceptions of financial barriers.

2. As it is analyzed, educational qualification does not play a significant role in the technological-related limitations (F = 1.625, p = 0.152). The mean scores

are different in each group and Plus Two/ Diploma holders have the highest mean score (2.81) and professionally qualified respondents have relatively lower mean scores (2.26). These differences are however statistically insignificant. The results suggest that there are no differences in the perception of technological issues among various educational backgrounds, which means that these barriers are more of a structural than an education-related nature.

3. The ANOVA findings indicate that there is no significant differences between the infrastructure blockage among the educational qualification groups ($F = 0.898$, $p = 0.482$). There is close clustering around the mean values with Plus Two/ Diploma holders having the lowest mean value of 2.06 and PhD holders having the highest mean value of 2.43 which indicates consistency in the perception of infrastructural problems. This consistency implies that the problems that are encountered in infrastructure affect retailers regardless of their education degrees. Therefore, the level of education does not have a substantial influence on the perceptions of the infrastructural obstacles to Immersive Commerce.

4. Conversely, there is statistically significant difference in customer readiness issues among the categories of education qualifications ($F = 6.604$, $p < 0.001$). This is because degree holders are the highest in the mean score (1.74) implying that they are relatively more concerned with customer readiness, although Master and professional qualified respondents have lower mean scores (approximately 1.30). This difference shows that education level is a factor that determines customer readiness of Immersive Commerce adoption by retailers. The result implies that higher or professional education might be linked to a better evaluation of the readiness of the customers.

Year of Experience wise analysis on Challenges

1. Results show that there are small differences in how financial constraints are perceived in various categories of years of experience. Retailers who have

less than one year, 1-3 years, 4-7 years, 8-10 years and more than 10 years experience record similar amounts of financial difficulties in the Implementation of the Immersive Commerce. There are few mean difference between the experience groups which indicates a coherent perception of cost-related problems. All in all, financial limitations seem to be a more prevalent issue regardless of the level of experience of the retailer.

2. The results indicate that there is a significant difference in technological related limitations among types of experience. The less experienced retailers report to have comparatively high technological challenges than the more experienced retailers. More seasoned retailers have a higher level of adaptability and are more familiar with the phenomenon of Immersive technologies, leading to a relatively reduced perceived constraints. It shows that the technological issues are more intensive in the initial years of exposure to Immersive Commerce.

3. The findings show that blockage associated with infrastructure is seen throughout all of the experience groups. The extent to which retailers have less than a year experience or more than ten years experience does not show differences in the infrastructural limitations reported by retailers. With minimal difference between categories, it is possible to guess that infrastructure problems are structural as opposed to experience-based. Therefore, infrastructure congestion is a common limitation in the retail industry.

4. The results demonstrate distinct variations in the perception of the customer readiness depending on the years of experience. Retailers that are more experienced report less customer readiness issues than retailers who have fewer years of experience in retailing. The less seasoned retailers feel more doubt about the customer acceptance and participation with Immersive Commerce. This trend indicates that experience of a long period in the market and interaction with the customers enhances the confidence of the retailers in customer readiness.

Position/Designation wise analysis on Challenges

1. The outcomes of ANOVA show that there is no significant difference in financial constraints by position and designation categories (F = 0.723, p = 0.539). The scores of Franchise Partners (M = 2.277), Managers (M = 2.385), Owners (M = 2.307), and Others (M = 2.297) are close to the mean scores. This indicates a fairly consistent understanding of financial limitations in respondents regardless of position held. The fact that the variation is low indicates that the financial challenges are usually shared among all the positions.

2. The results indicate that there is no significant change in any of the tech-related constraints according to position or designation (F = 0.363, p = 0.780). There is no significant difference in the mean values of the Managers (M = 2.333), Owners (M = 2.311), Franchise Partners (M = 2.301), and Others (M = 2.219). This is a sign of a steady rate of technological constraints seen in various positions. The findings point out that, issues relating to technology are not location-specific.

3. The analysis of ANOVA indicates that there is no significant difference in infrastructure blockage according to the categories of designation (F = 1.141, p = 0.332). Mean scores are very close with the Owners with 2.336 and Managers with 2.445, and Franchise Partners (M = 2.382) and others (M = 2.438) have the same levels. This indicates a general outlook on infrastructural problems of the positions. In general, the issue of infrastructure blockage is considered a common issue regardless of position.

4. The outcomes show that there is a considerable difference in the issues related to customer readiness using position or designation groups (F = 2.762, p = 0.042). The highest mean score (M = 1.523) is recorded among respondents in the Others category, Managers (M = 1.349), and Owners (M = 1.337) with Franchise Partners having the lowest mean (M = 1.253). This indicates role variation in perceived customer readiness. The results propose that position has an impact on the experience of customer readiness issues.

Retail Format wise analysis on Challenges

1. The analysis reveals that financial constraints are not significant in terms of retail format differences. Similar financial constraints are reported by brick-and-mortar retailers (Mean = 2.36, SD = 0.49), the e-Commerce/m-Commerce retailers (Mean = 2.30, SD = 0.57), and the Omni-channel retailers (Mean = 2.33, SD = 0.53). The ANOVA finding (F = 0.208, p = 0.812) proves the lack of statistically significant difference between the formats.

2. Results indicate that there is no significant difference in tech associated constrainment in various retail formats. The mean score of brick-and-mortar outlets is 2.36 (SD = 0.67) and the same is shown by the e-Commerce/m-Commerce outlets (Mean = 2.31, SD = 0.56) and the Omni-channel retailers (Mean = 2.30, SD = 0.53). The difference is not significant since the F-value is 0.102 and the p-value is 0.903.

3. There is an equivalent level of infrastructure blockage experienced in all retail formats. The mean of brick-and-mortar retailers (Mean = 2.57, SD = 0.47) is slightly higher than in the e-Commerce/m-Commerce (Mean = 2.37, SD = 0.56) and Omni-channel formats (Mean = 2.38, SD = 0.49). The ANOVA value (F = 1.254, p = 0.286) however is not statistically significant indicating that these differences are not significantly different.

4. The problem of customer readiness is not much different in the retail formats. The main retailers indicate 1.25 (SD = 0.36) as the mean, whereas e-Commerce/ m-Commerce (Mean = 1.35, SD = 0.48) and Omni-channel retailers (Mean = 1.34, SD = 0.43) indicate slightly higher but similar values. F-value of 0.378 and p-value 0.685 prove that the formats do not significantly differ.

Annual Turnover wise analysis on Challenges

1. The analysis reveals that there is no significant difference in the financial constraint by the categories of the annual turnover as indicated by the F-

value of 0.624 and p-value of 0.646. Mean scores in turnover groups are nearly close and the range is between 2.19 and 2.36 with similar values of standard deviations. The financial constraints among retailers in all the levels of turnover are of a similar magnitude. Therefore, the turnover every year does not seem to have any effect on the perceived financial limitations regarding the Implementation of Immersive Commerce.

2. The ANOVA findings show that the difference between the tech-related constraints in the various turnover categories per year (Annual turnover) was not significant ($F = 0.152$, $p = 0.962$). Mean values are very consistent in all groups and the mean is quite close that ranges close to 2.27 to 2.33. This shows that technology issues are seen as similar regardless of the magnitude of the annual turnover. Thus, the level of turnover does not have a strong impact on tech-related constraints.

3. The result has shown that there is no significant difference in infrastructure blockage between high and low annual turnover with F-value of 1.707 and p-value of 0.148. Even though there are minimal differences in the mean scores between the categories (2.26 to 2.50), they are not significant. There are also infrastructure-related challenges faced by retailers of varying magnitudes of turnover. Therefore, the issue of annual turnover does not contribute to blockage of infrastructure significantly.

4. The findings reveal that there is no significant difference between the issues of customer readiness among the annual turnover groups ($F = 0.662$, $p = 0.619$). Standard deviations are always low with little differences between mean scores of 1.29 to 1.39. This is an indication that regardless of the size of turnover, customer readiness issues are viewed in a similar manner among the retailers. As a consequence, the turnover annually does not have a huge impact on the problem of readiness to customers.

Location wise analysis on Challenges

1. Results of the ANOVA show that the financial constraints are not statistically different based on the locations (F = 0.616, p = 0.816). The mean scores are comparatively similar in the cities that vary between 2.229 (Mumbai) and 2.528 (Indore). The majority of the locations have means that are close to the mid-2 range, and the dispersion is very low. The results establish that there is no statistically significant difference in location-based variation in financial constraints.

2. The results of the analysis indicate that there is no significant difference in the tech related constraints between locations (F = 1.317, p = 0.212). The mean scores have slight variation of between 2.080 (Pune) to 2.528 (Indore). A number of metropolitan areas are above 2.35 in their means such as Mumbai, Chennai and Ahmedabad. Generally, these findings suggest consistency in the tech-related constraints, regardless of the location.

3. The location has no significant differences in infrastructure blockage (F = 0.834, p = 0.606). The mean values vary between 2.148 (Ahmedabad) and 2.500 (Chennai). The majority of the cities are clustering at an average of between 2.35 and 2.45. The results indicate no significant differences in terms of location, where infrastructure is blocked, which are statistically significant.

4. It can be concluded that ANOVA results do not provide any significant location-related difference in the issues of customer readiness (F = 1.074, p = 0.381). There are mean scores of 1.136 (Bhubaneswar) to 1.500 (Mumbai). Mean values are also consistently near the lower part of the scale across locations. These results imply that customer preparation issues are the same in various locations.

Category of Retail wise analysis on Challenges

1. The result of the ANOVA shows that Financial Constraints is different across types of retail significantly (F = 2.29, p = 0.05). The highest mean

score (M = 2.521, SD = 0.403) was observed in the category of Beauty and Health Care retailers, which means that this group has a comparatively limited financial base. The lowest mean (M = 2.174, SD = 0.636) was observed among Furniture & Home Décor retailers which implies that the financial pressure is relatively less. Other groups like Electronics & Gadgets, Grocery and FMCG, Apparels and Fashion and Others were moderate with close clustered mean.

2. The results indicate that there is no significant difference among retail categories in the Tech-Related Constraints (F = 0.58, p = 0.72). The average of the categories is between the range of **2.25 to 2.396 which is a close range showing that there is a relatively homogeneous perception towards technological constraints. Beauty & Health Care and Electronics and Gadgets categories had slightly higher means but the lowest were recorded at Apparels and Fashion. In general, the difference in tech-related constraints among retail categories is not high.

3. According to the findings of the ANOVA, there is no significant difference in the Infrastructure Blockage when using the categories of retail (F = 1.41, p = 0.22). The mean scores are between 2.292 and 2.533 with the highest mean in the category of Other and lowest in the category of Beauty and Health Care. The value of the means is closely corresponding within most of the categories suggesting that the challenges are not different based on infrastructure. The standard deviations indicate a moderate variation in categories.

4. The results of the analysis show that Customer Readiness Issues have no significant differences across categories of retailers (F = 1.03, p = 0.40). The mean scores are between 1.255 and 1.49, which is a fairly similar perception of customer readiness, which is consistent across the categories. The biggest mean value was recorded by Beauty & Health Care retailers whereas the lowest mean value was recorded by the Others category. In general, the

issues of customer readiness seem to be evenly spread among the segments of retailing.

Gender wise analysis on Risks and Barriers

1. The mean score for male respondents (M = 2.33, SD = 0.55) is slightly higher than that of female respondents (M = 2.27, SD = 0.50). However, the t-test result (t = 1.065, p = 0.287) indicates that this difference is not statistically significant. Hence, perceptions of financial risks related to Immersive Commerce do not vary meaningfully by gender.

2. Male retailers reported a marginally higher mean score (M = 2.30, SD = 0.58) compared to female retailers (M = 2.26, SD = 0.55). The observed difference is not statistically significant (t = 0.661, p = 0.509). This suggests that operational risk perceptions are similar across genders.

3. Male respondents show a higher mean score (M = 1.67, SD = 0.42) than female respondents (M = 1.46, SD = 0.47). The t-test result is statistically significant (t = 4.452, p < 0.001), indicating a meaningful gender difference. Thus, male retailers perceive security and privacy risks in Immersive Commerce more strongly than female retailers

4. Female respondents reported a higher mean score (M = 1.72, SD = 0.39) compared to male respondents (M = 1.62, SD = 0.42). The difference is statistically significant (t = –2.266, p = 0.024). This finding indicates that female retailers perceive consumer inclusivity challenges more strongly than male retailers.

5. The mean score for male respondents (M = 2.32, SD = 0.52) is slightly higher than that of female respondents (M = 2.28, SD = 0.48). The difference is not statistically significant (t = 0.726, p = 0.468). Therefore, gender does not significantly influence perceptions of consumer-related barriers in Immersive Commerce.

Age wise analysis on Risks and Barriers

The ANOVA results show that financial risks do not vary significantly across different age groups (F = 2.073, p = 0.127). Retailers aged 18–40 and 41–60 report similar mean scores, indicating comparable perceptions of financial risk. Although respondents aged 60 years and above record a higher mean value, the small sample size and non-significant p-value suggest that age does not meaningfully influence financial risk perception. Overall, financial risk concerns remain largely uniform across age categories.

1. A significant age-wise difference is observed in operational risks (F = 3.197, p = 0.042). Retailers in the 41–60 and 60+ age groups report higher mean scores compared to those aged 18–40. This indicates that older respondents perceive greater operational difficulties related to Immersive Commerce Implementation. Younger retailers appear relatively less concerned about operational disruptions.

2. The findings reveal a statistically significant difference in security and privacy risks across age groups (F = 5.898, p = 0.003). The highest mean score is reported by respondents aged 60 and above, followed by the 18–40 age group, while the 41–60 group reports the lowest mean. This pattern suggests heightened sensitivity toward data security and privacy issues among older retailers. Age therefore plays an important role in shaping perceptions of security-related risks.

3. Consumer inclusivity shows a significant variation across age categories (F = 3.050, p = 0.048). Retailers aged 41–60 and 60+ report higher mean values compared to the 18–40 group. This indicates that older respondents perceive inclusivity challenges more strongly in Immersive Commerce environments. Younger retailers tend to view consumer inclusivity issues as relatively less prominent.

4. The ANOVA results indicate no significant age-based difference in consumer barriers (F = 0.711, p = 0.492). Mean scores across all age groups

remain closely aligned, reflecting consistent perceptions of consumer-related barriers. Even though respondents aged 60 and above show a slightly higher mean, the difference is not statistically meaningful. Thus, age does not significantly influence views on consumer barriers in Immersive Commerce.

Educational Qualification analysis on Risks and Barriers

1. The ANOVA results show that financial risks do not differ significantly across educational qualification categories (F = 1.131, p = 0.343). Although respondents with Plus Two/Diploma (Mean = 2.75) and School/Matriculation (Mean = 2.65) reported relatively higher mean scores, the variation across groups is not statistically meaningful. Degree, Master's, Professional, and PhD holders reported fairly similar and comparatively lower mean values. Hence, educational qualification does not significantly influence perceptions of financial risk

2. The analysis indicates no significant difference in operational risk perceptions across educational qualification levels (F = 1.284, p = 0.270). PhD holders (Mean = 2.43) and professionals (Mean = 2.31) showed slightly higher mean scores compared to degree holders (Mean = 2.09). However, these differences are not strong enough to reach statistical significance. Overall, operational risk perceptions remain consistent irrespective of educational background.

3. A significant difference is observed in security and privacy risk perceptions across educational qualification categories (F = 2.502, p = 0.030). School/Matriculation respondents reported the highest mean score (Mean = 1.95), while PhD holders reported the lowest (Mean = 1.43). The mean scores show a general decline with increasing educational level. This indicates that perceptions of security and privacy risks vary significantly with educational qualification.

4. The findings reveal a statistically significant difference in consumer inclusivity perceptions across educational levels (F = 3.856, p = 0.002).

Degree holders (Mean = 1.83) and Master's degree respondents (Mean = 1.71) reported higher mean scores compared to School/Matriculation respondents (Mean = 1.20). The variation suggests that educational qualification has a significant influence on views related to consumer inclusivity. Thus, inclusivity perceptions differ meaningfully among education groups.

5. The ANOVA results show no significant difference in consumer barrier perceptions across educational qualification categories (F = 0.225, p = 0.952). Mean values are closely clustered across all groups, ranging from 2.29 to 2.36. This indicates a high level of consistency in perceived consumer barriers irrespective of respondents' educational background. Therefore, educational qualification does not significantly affect perceptions of consumer barriers

Year of Experience analysis on Risks and Barriers

1. The ANOVA results indicate that perceptions of financial risks do not significantly differ across year-of-experience categories (F = 1.056, p = 0.378). Mean scores remain relatively close across all groups, ranging from 2.136 to 2.358. Retailers with 4–7 years of experience reported the highest mean perception of financial risks, while those with less than one year reported the lowest. Overall, experience level does not appear to influence financial risk perception in a statistically significant manner.

2. Findings show no significant difference in operational risk perceptions based on years of experience (F = 1.594, p = 0.175). Mean values vary moderately, with the highest mean observed among retailers with more than 10 years of experience (M = 2.50) and the lowest among those with less than one year (M = 2.023). Despite these variations, the differences are not statistically meaningful. This suggests a broadly similar view of operational risks across experience levels.

3. A significant difference is observed in security and privacy risk perceptions across experience categories ($F = 8.423$, $p < 0.001$). Retailers with 8–10 years of experience reported the highest mean score ($M = 1.719$), indicating stronger concern, whereas those with 1–3 years reported the lowest ($M = 1.34$). The variation in means reflects that experience level plays a significant role in shaping awareness and concern regarding security and privacy risks. Hence, perceptions of these risks increase and vary meaningfully with experience.

4. The ANOVA results reveal a significant difference in consumer inclusivity perceptions across experience groups ($F = 2.993$, $p = 0.019$). Retailers with 1–3 years of experience reported the highest mean score ($M = 1.81$), while those with 8–10 years reported the lowest ($M = 1.596$). Although differences are modest, they are statistically significant, indicating that experience level influences views on inclusivity-related challenges. This suggests differing sensitivity to inclusivity issues across experience stages.

5. Perceptions of consumer barriers do not significantly vary with years of experience ($F = 0.391$, $p = 0.815$). Mean scores are closely clustered, ranging from 2.203 to 2.333 across all experience groups. Retailers with 8–10 years of experience reported a slightly higher mean, but the variation is minimal. Overall, experience level does not significantly affect perceptions of consumer-related barriers.

Position / Designation analysis on Risks and Barriers

1. The ANOVA results show that perceptions of financial risks do not significantly differ across position or designation categories ($F = 0.744$, $p = 0.527$). Mean scores range from 2.259 among managers to 2.378 among franchise partners, indicating only minor variation. Owners and respondents in other positions reported mean values close to the overall average ($M = 2.307$). Overall, designation does not have a significant influence on financial risk perception.

2. Findings indicate no significant difference in operational risk perceptions based on position/designation ($F = 0.338$, $p = 0.798$). The mean scores are closely clustered, with owners reporting a mean of 2.303 and those in other positions reporting a slightly higher mean of 2.359. Managers and franchise partners also reported comparable levels of operational risk. This suggests a uniform perception of operational risks across different designations.

3. A significant difference is observed in security and privacy risk perceptions across designation categories ($F = 2.956$, $p = 0.032$). Owners reported the highest mean score ($M = 1.64$), followed closely by managers ($M = 1.619$), indicating relatively higher concern in these groups. Franchise partners reported the lowest mean ($M = 1.460$), while respondents in other positions showed moderate concern. These results indicate that position/designation significantly influences perceptions of security and privacy risks.

4. The analysis reveals no significant difference in consumer inclusivity perceptions across positions or designations ($F = 0.656$, $p = 0.579$). Mean values range from 1.628 among managers to 1.742 among respondents in other positions, reflecting only marginal variation. Franchise partners and owners reported similar mean scores close to the overall average ($M = 1.654$). Hence, designation does not significantly affect views on consumer inclusivity.

5. Perceptions of consumer barriers do not significantly vary across position/designation categories ($F = 0.371$, $p = 0.774$). Mean scores are narrowly distributed, with managers and respondents in other positions reporting slightly higher means than franchise partners and owners. Despite these small differences, the overall pattern indicates statistical non-significance. Therefore, position or designation does not play a meaningful role in shaping perceptions of consumer barriers.

Retail Format analysis on Risks and Barriers

1. The ANOVA results indicate that perceptions of financial risks do not significantly differ across retail formats (F = 1.727, p = 0.179). Mean scores are relatively higher for Brick & Mortar retailers (M = 2.403) compared to E-Commerce/M-Commerce (M = 2.361) and Omni-channel formats (M = 2.265). Despite these numerical differences, the variation is not statistically significant. This suggests that financial risk perceptions are broadly similar across different retail formats.

2. Findings show no significant difference in operational risk perceptions among the different retail formats (F = 1.502, p = 0.224). Omni-channel retailers reported the highest mean score (M = 2.331), followed by Brick & Mortar (M = 2.292) and E-Commerce/M-Commerce retailers (M = 2.226). The mean values are closely clustered, indicating limited variation. Overall, retail format does not significantly influence operational risk perception.

3. The analysis reveals no significant variation in security and privacy risk perceptions across retail formats (F = 0.017, p = 0.983). Mean scores are almost identical across Brick & Mortar (M = 1.611), E-Commerce/M-Commerce (M = 1.592), and Omni-channel retailers (M = 1.598). The extremely small F-value further confirms uniformity in perceptions. Hence, retail format does not affect security and privacy risk concerns.

4. A significant difference is observed in consumer inclusivity perceptions across retail formats (F = 5.081, p = 0.007). E-Commerce/M-Commerce retailers reported the highest mean score (M = 1.717), followed by Omni-channel retailers (M = 1.633), while Brick & Mortar retailers reported the lowest (M = 1.417). This indicates that retail format plays a meaningful role in shaping perceptions related to consumer inclusivity. Digital and hybrid formats appear to perceive inclusivity challenges more strongly than traditional formats.

5. The findings indicate no statistically significant difference in perceptions of consumer barriers across retail formats (F = 2.301, p = 0.102). Brick & Mortar retailers reported a comparatively higher mean score (M = 2.528) than E-Commerce/M-Commerce (M = 2.333) and Omni-channel retailers (M = 2.277). However, these differences are not significant at conventional levels. Thus, consumer barrier perceptions remain largely consistent across retail formats.

Annual Turnover analysis on Risks and Barriers

1. The findings indicate that perceptions of financial risks are broadly similar across all annual turnover categories. The mean values range from 2.17 to 2.35, with retailers in the 5 crore–10 crore category reporting the highest mean and those with less than 50 lakhs reporting the lowest. The ANOVA result (F = 0.533, p = 0.712) shows that the differences among turnover groups are not statistically significant. This suggests that annual turnover does not have a significant influence on perceived financial risks.

2. Operational risk perceptions show only marginal variation across turnover categories, with mean scores ranging between 2.25 and 2.39. Retailers with less than 50 lakhs turnover report a slightly higher mean, while those in the 1 crore–5 crore category show the lowest mean. The ANOVA outcome (F = 0.657, p = 0.622) confirms that these differences are not statistically significant. Hence, operational risk perceptions remain consistent irrespective of annual turnover.

3. The mean scores for security and privacy risks fall within a narrow range of 1.48 to 1.64 across all turnover groups. Retailers with 10 crore and above turnover show a marginally higher mean, whereas those with less than 50 lakhs show the lowest. The ANOVA result (F = 0.757, p = 0.554) indicates no significant difference among the groups. Therefore, annual turnover does not significantly affect perceptions of security and privacy risks.

4. Consumer inclusivity perceptions are closely aligned across turnover categories, with mean values ranging from 1.63 to 1.74. Retailers in the less than 50 lakhs category record a slightly higher mean compared to other groups. However, the ANOVA findings ($F = 0.332$, $p = 0.857$) reveal that these differences are not statistically significant. This shows that consumer inclusivity concerns do not vary meaningfully with annual turnover.

5. Perceptions of consumer barriers show minor differences across turnover levels, with mean scores ranging from 2.11 to 2.38. The highest mean is observed in the 5 crore–10 crore category, while the lowest is seen among retailers with less than 50 lakhs turnover. The ANOVA result ($F = 1.321$, $p = 0.261$) indicates that these variations are not statistically significant. Thus, annual turnover does not have a significant impact on perceived consumer barriers.

7.5.10 Relationship of Negative Impact Factors on Successful Implementation of Immersive Commerce

1. **Effect of Financial Constraints on Successful Implementation of Immersive Commerce**

   The findings indicate that financial constraints have a statistically significant negative effect on the Successful Implementation of Immersive Commerce. The estimated path coefficient is −0.108 with a standard error of 0.01 and a critical ratio of −18.78, which is significant at $p < .001$. The standardized beta value ($\beta = -0.35$) shows a moderate to strong negative influence. Hence, the hypothesis stating a significant relationship between financial constraints and Successful Implementation is supported.

2. **Effect of Tech-Related Constraints on Successful Implementation of Immersive Commerce**

   The results reveal that tech-related constraints significantly and negatively influence the Successful Implementation of Immersive Commerce. The estimate of −0.104, along with a standard error of 0.01 and a critical ratio of

−18.20, confirms high statistical significance ($p < .001$). The standardized coefficient ($\beta = -0.339$) reflects a substantial negative impact. Therefore, the hypothesis is supported.

3. **Effect of Infrastructure Blockage on Successful Implementation of Immersive Commerce**

   The findings show that infrastructure blockage has a significant negative impact on the Successful Implementation of Immersive Commerce. The path estimate is −0.102 with a standard error of 0.01 and a critical ratio of −16.80, indicating significance at $p < .001$. The standardized beta value ($\beta = -0.313$) suggests a notable adverse effect. Accordingly, the hypothesis is supported.

4. **Effect of Customer Readiness Issue on Successful Implementation of Immersive Commerce**

   The analysis demonstrates that customer readiness issues exert a strong and statistically significant negative influence on the Successful Implementation of Immersive Commerce. The estimated coefficient is −0.170 with a standard error of 0.01 and a critical ratio of −24.35, significant at $p < .001$. The standardized effect size ($\beta = -0.454$) indicates the strongest negative impact among all constraints examined. Thus, the hypothesis is supported.

5. **Effect of Financial Risks on Successful Implementation of Immersive Commerce**

   The findings confirm that financial risks significantly hinder the Successful Implementation of Immersive Commerce. The estimate of −0.095, combined with a standard error of 0.01 and a critical ratio of −16.19, is statistically significant at $p < .001$. The standardized beta ($\beta = -0.302$) reflects a moderate negative effect. Hence, the hypothesis is supported.

6. **Effect of Operational Risks on Successful Implementation of Immersive Commerce**

   The results indicate that operational risks have a statistically significant and negative effect on the Successful Implementation of Immersive Commerce.

The path coefficient is −0.113 with a standard error of 0.01 and a critical ratio of −20.74, significant at $p < .001$. The standardized estimate ($\beta = -0.387$) shows a strong adverse influence. Therefore, the hypothesis is supported.

7. **Effect of Customer Inclusivity on Successful Implementation of Immersive Commerce**

   The findings show that customer inclusivity challenges significantly and negatively affect the Successful Implementation of Immersive Commerce. The estimated value of −0.116, with a standard error of 0.01 and a critical ratio of −15.32, confirms significance at $p < .001$. The standardized beta coefficient ($\beta = -0.286$) indicates a meaningful negative impact. Consequently, the hypothesis is supported.

The results also demonstrate that Customer Readiness Issues, Financial Risks, and Inclusiveness challenges are the primary producers of security and privacy threats in immersive commerce, with Customer Readiness demonstrating the most significant correlation because of low levels of digital literacy, low level of technological exposure, and distrust. Conversely, the covariance of Consumer Barriers is minimal in nature meaning that the resistance or awareness gaps as such do not substantially increase the concern of security and privacy unless supported by the readiness, inclusion, and financial risk variables.

7.6 Conclusion

The study concludes that Immersive Commerce holds substantial strategic promise for modern Indian retailing, offering retailers meaningful opportunities to enhance customer engagement, strengthen product communication, and improve overall business performance. Retailers largely perceive Immersive Commerce not as a short-term technological trend but as a long-term, experience-driven strategy that supports differentiation, innovation, and sustained competitiveness. Positive impact factors such as experiential enhancement, product positioning, perceived value, sales growth, innovation capability, and growth potential significantly contribute to the

Successful Implementation of Immersive Commerce, with innovation capability and sales growth emerging as particularly influential drivers.

At the same time, the findings clearly demonstrate that the Successful Implementation of Immersive Commerce is constrained by multiple interrelated challenges, risks, and barriers. Financial constraints, technological limitations, infrastructure blockage, and especially customer readiness issues exert significant negative effects on Implementation outcomes. Among these, customer readiness emerges as the most critical impediment, highlighting the importance of consumer awareness, familiarity, and confidence in Immersive technologies. Risks related to operations, data security, privacy, and inclusivity further reinforce the need for cautious, well-planned, and controlled adoption strategies.

Demographic and retail characteristics show that most challenges and risks are perceived consistently across gender, age, experience, retail format, turnover, and location, suggesting that many barriers are structural rather than group-specific. However, selective differences particularly in consumer readiness, security and privacy concerns, and inclusivity perceptions indicate that managerial roles, experience levels, and retail formats influence how Immersive Commerce challenges are interpreted and managed. These variations underline the importance of contextual and role-sensitive strategies in Implementation.

Overall, the study establishes that Immersive Commerce in Indian retail represents a balanced mix of opportunity and risk. While it has strong potential to transform customer experiences and support long-term growth, its success depends on strategic alignment, technological reliability, financial preparedness, consumer education, and inclusive design. The conclusion reinforces that Immersive Commerce adoption in India must be gradual, context-sensitive, and strategically governed, ensuring that innovation is complemented by risk management and inclusivity. By addressing both enabling factors and constraints in an integrated manner, Indian retailers can achieve sustainable and effective Implementation of Immersive Commerce in an increasingly competitive and digitally evolving retail landscape.

CHAPTER 8

RECOMMENDATIONS, IMPLICATIONS AND FUTURE SCOPE OF RESEARCH

- *Recommendations*
- *Implications of the Study*
- *Future Scope of Research*

Anoop, P. Opportunities and challenges of implementing immersive commerce strategy in modern Indian retailing. Thesis.2026. Farook College (Autonomous), University of Calicut.

8.1 Recommendations

8.1.1 Recommendation to the Retailers, Owners, Franchise Partners and Decision Makers

The following recommendations are given in order to contribute to the successful, sustainable, and inclusive introduction of immersive commerce into contemporary Indian retailing. The recommendations are aimed at the owners of the retail, the managers, the franchise partners, and the senior decision-makers who have the responsibilities of strategic planning, adoption of technology, and implementation of the operations.

1. Retailers must adopt immersive commerce gradual and in phases instead of spending heavily on the same. Pilot testing can be done in specific stores or lines of product which will minimize financial risk and will enable the retailer to determine the feasibility of operations within large scale after trial.

2. Retailers should be keen to teach and instruct customers on the use of immersive technologies. Customer confidence and hesitation can be lessened and overall acceptance can be increased through in-store demonstrations and assisted usage.

3. The immersive systems should be stable, user friendly, and properly integrated with the existing retail business. Technical problems can easily affect the level of customer trust adversely and undermine the perceived value of immersive experience.

4. Managers and owners need to promote the culture of innovation by educating employees and encouraging them to experiment with new digital tools. Ongoing education and the capacity building that is internal will be required to help maintain and support the long term effective application of immersive commerce.

5. The features, advantages and use of products should be clearly displayed in the case of immersive apps. Retailers should also make sure that immersive

experiences help people make informed choices instead of acting as decorative elements.

6. The immersive solutions should be considered with great care by the retailers in terms of cost and anticipated returns and the overall influence on operation. Developing standard operating procedures and selecting the good technology partners will reduce the disruptions and financial exposure.

7. Data protection systems and cyber security should be developed, which would protect the information of customers. Open dialogue on the use of the data can aid in the creation of trust and mitigating the factor of privacy concerns.

8. The retailers need to make sure that immersive commerce is not used to eliminate the traditional modes of shopping. It will be necessary to provide alternative options and create user-friendly interfaces that will involve customers with different levels of digital skills.

9. Strategies of the immersive commerce ought to be adjusted to regional infrastructure, consumer behaviour and online preparedness. Geographical tailoring can increase efficacy and can guarantee enhanced returns to immersive investments.

8.1.2 Recommendations to Retail Technology Providers / Immersive Solution Developers

1. Simple, intuitive and minimal learning by the retailers and the customers should be expected of an immersive solution. The simplicity of navigation, straightforward guidelines and fast on boarding will aid in enhancing the readiness of the customers and minimize the adoption resistance.

2. The providers of technology have to focus on constant performance, low latency, and small system failure. The durable solutions create trust in the retailers and secure brand image and continuous customer experiences during the immersive interactions.

3. Immersive solutions must be modulable and adaptable to the needs of small and large retailers with limited and unlimited financial capacity. Phased deployment and flexible pricing models can be used to promote the broader adoption, particularly between small and medium retailers.

4. The solutions must be integrated with current retail solutions like POS, inventory, CRM and e-commerce solutions. Integration enables the efficiency of operations and facilitates effective retail operations.

5. Immersive solution developers are to ensure effective cyber security measures and adhere to data protection laws. Open data management will assist retailers to handle customer privacy and online confidence issues.

6. The technology providers are to provide on-going training, onboarding, and responsive technical support. Proper post implementation support would mean that retailers are able to use immersive solutions to full potential and address operational challenges promptly.

7. The immersive technologies must be developed to serve various user groups such as old customers and individuals with minimal internet skills. Inclusivity can be advanced by the use of features like language options, accessibility support, and simplified modes.

8. The developers are advised to take into account regional infrastructure constraints, equipment availability, and diverse digital maturity of the Indian markets. Local customization increases relevancy and increases the implementation success.

9. Real-time store feedback and usage data should drive the creation of regular updates and improvement of solutions. Constant innovation keeps immersive solutions up to date, competitive, and in line with the changing retail requirements.

8.1.3 Recommendations to Policy Makers and Government Bodies

1. Government bodies should prioritize improvements in broadband connectivity, network stability, and digital infrastructure across urban, semi-urban, and rural regions. Reliable infrastructure is essential for the smooth deployment of immersive commerce technologies in the retail sector.

2. Policy makers should introduce subsidies, tax incentives, and low-interest financing schemes to support retailers adopting immersive technologies. Such financial assistance can reduce initial investment barriers, especially for small and medium retail enterprises.

3. There is a need for well-defined regulations covering data privacy, cyber security, consumer protection, and ethical use of immersive technologies. Clear guidelines will reduce uncertainty for retailers and technology providers and encourage responsible adoption.

4. Government initiatives should focus on enhancing digital literacy among retailers, employees, and consumers. Training programs, workshops, and certification courses can improve readiness and confidence in using immersive commerce technologies.

5. Policy makers should encourage collaboration between technology developers, retail firms, and academic institutions. Innovation hubs, incubation centres, and pilot projects can accelerate the development and testing of immersive commerce solutions.

6. Government bodies should ensure that immersive commerce adoption does not exclude vulnerable groups. Policies promoting accessibility standards, multilingual support, and inclusive design can help reach diverse consumer segments.

7. Establishing common standards for immersive commerce platforms can improve compatibility, reduce integration costs, and enhance scalability.

Standardization will also help retailers adopt immersive solutions more efficiently.

8. Policy initiatives should be tailored to the varying levels of digital maturity across Tier 1, Tier 2, and rural markets. Region-specific policies can ensure balanced growth and equitable adoption of immersive commerce across India.

9. Government bodies should support empirical research on immersive commerce adoption and its economic impact. Evidence-based insights will help refine policies, monitor outcomes, and guide future digital retail strategies.

8.1.4 Recommendations to Retail Associations and Industry Bodies

1. Retail associations should actively promote awareness about immersive commerce through seminars, webinars, and industry forums. Knowledge-sharing platforms can help retailers understand practical benefits, execution challenges, and best practices from real world case studies.

2. Industry bodies should organize structured training programs to build digital and immersive commerce capabilities among retailers and employees. Skill development initiatives can reduce technology-related anxiety and improve adoption readiness across the sector.

3. Retail associations can act as intermediaries by connecting retailers with credible immersive solution developers. Such collaboration helps retailers access reliable vendors and encourages solution customization based on industry needs.

4. Industry bodies should formulate standardized guidelines for immersive commerce implementation, covering areas such as usability, security, and customer engagement. These guidelines can support consistent and responsible adoption across retail formats.

5. Retail associations should represent retailer concerns to government bodies and advocate for supportive policies, subsidies, and infrastructure development. Collective representation strengthens the industry's voice in shaping favorable regulatory frameworks.

6. Industry bodies should promote inclusive design principles and ethical use of immersive technologies. Ensuring accessibility and consumer protection will enhance trust and long-term acceptance.

7. Associations can initiate pilot programs and shared immersive labs to demonstrate feasibility and benefits. Demonstration models reduce uncertainty and help smaller retailers visualize practical implementation.

8. Retail industry bodies should collaborate with academic institutions to support research on immersive commerce trends and impacts. Evidence-based insights will guide strategic decisions and strengthen industry preparedness.

9. Industry bodies should facilitate networking among retailers to share experiences, challenges, and success stories. Peer learning encourages confidence and accelerates the diffusion of immersive commerce across the retail ecosystem.

8.2 Implications of the Study

8.2.1 Theoretical Implications

The study contributes significantly to the literature of immersive commerce through the extension of empirical knowledge to non-Western-based environments and the establishment of solid ground on the Indian retail environment. The study provides a holistic model of the immersive commerce adoption by focusing on both positive impact factors (opportunities, customer loyalty, business performance, and future potential) and negative impact factors (challenges, risks and barriers). The results confirm the theories of experiential enhancement and innovation capability along with perceived value as important determinants of successful implementation given

that they support risk and constraint-based viewpoints, which highlight structural and consumer-sided constraints. The balanced management of enablers and inhibitors makes this integrated approach enrich the existing models by showing that success of immersive commerce cannot be achieved solely through opportunities but through the balanced management of the enablers and inhibitors.

8.2.2 Implications to Retailers in their Management.

The results clearly give retailers an idea to follow when thinking of adopting immersive commerce or even those who are already doing it. Retail managers ought to consider immersive commerce as a strategic investment that can be long-term, instead of a short-term sales tool, and experiential enhancement and innovation capability are the main success factors. As customer readiness was revealed to be the most potent negative force, the retailers are obliged to invest in customer education, assisted immersive experiences, and onboarding to establish familiarity and confidence. The adverse effect of financial and operational risks implies that introduction should take place in phases with pilot testing and constant control of the performance as opposed to massive and immediate rollouts. Retailers also need to comply with the fact that the immersive solutions should be dependable, easy to use, and blend perfectly with the current operation to avoid losing customer loyalty.

8.2.3 Retail Technology Providers and Immersive Solution Developers Implications.

In the case of the immersive technology providers, the research indicates that there is a need to come up with affordable, scalable, and reliable solutions that would suit the conditions of retailing in India. As the retailers raised profound signs of worry over technical dependability, safety, and interruption of operation, the solution developers ought to focus on dependability, simple integration and high-quality post implementation service. The great level of anxiety regarding data safety and privacy suggests that immersive platforms should incorporate comprehensive cyber security systems and open data-processing solutions. Moreover, inclusivity issues suggest that adaptive interfaces, multilingual functionality, and accessibility-focused design

are necessary to provide immersive experiences that would apply to a wide range of consumer groups instead of focusing solely on digitally elite demographic segments.

8.2.4 Implications to Policy and Government.

The results imply that policymakers have a significant part to play in ensuring the adoption of immersive commerce as part of the bigger digital retail agenda. As the blockage of infrastructure and consumer preparedness are important factors of implementation, government measures to implement should strengthen digital infrastructure, particularly in Tier 2 cities and new retail clusters. Digital innovation policies can take the form of incentives, subsidies or tax breaks on financial risks that can reduce perceptions of financial risk among retailers. The needs of the standardized regulatory frameworks of immersive technologies, data protection, and consumer privacy are further highlighted by the high level of anxiety about the security and privacy risks. A set of policies can raise the trust of retailers and encourage the use of immersive commerce technologies responsibly.

8.2.5 Retail Association and Industry Body Implications.

Retail associations, and industry bodies can be very instrumental in playing the facilitative aspect by being the knowledge intermediaries. Considering that there is a similar perception of the challenges in all retail format and sizes, associations can administer training, workshops, and best-practice forums to raise the level of managerial and technical preparedness. The industry bodies can also work together with the technology providers in coming up with standardized implementation systems to help eliminate uncertainty and risk among the retailers. These organizations can speed up the adoption rate by encouraging awareness campaigns and mutual learning platforms and reducing the cost of trial and error on the parts of individual retailers.

8.2.6 Implications on consumers and Society

The article focuses on inclusivity as an important issue, which means that the implementation of immersive commerce should be socially accountable. The retailers should make sure that immersive technologies will not substitute the

traditional ways of shopping but will work in harmony to ensure that digitally less sure consumers are not left behind. The results underscore the fact that there should be inclusive innovation, which will cater to different digital literacy, physical ability, and cultural diversity levels. When applied intelligently, immersive commerce will increase consumer empowerment, decision confidence, and satisfaction with shopping and decrease the digital divide.

8.2.7 Strategic Implications on the Indian Retail Ecosystem

On a bigger scale, it can be suggested that the immersive commerce can only become a strategic differentiator of the Indian retailer in the case when it is adjusted to the specifics of the local market. Standardized approaches to different regions, formats, and segments of consumers can cause inefficacy and failure. Rather, immersive commerce needs to be contextual, adaptable and strategically controlled. The findings support the idea that sustainable success is based on balancing between innovation and risk management, experimentation and discipline, and technological breakthrough and inclusivity.

In a short list, the consequences of this research point out that immersive commerce in the Indian retail is not a sure-footed success or an unworthy investment. Its successes all rely on the sound managerial decision making, enabling policy framework, responsible technological design and consumer centric implementation. When issues of these implications are looked at together, stakeholders will be able to make sure that immersive commerce will play a significant role in the long-term competitiveness and transformation of the modern Indian retailing.

8.3 Future Scope of Research

Based on the findings, as well as the limitations of the existing study, the following research directions are to be proposed in the future:

1. **Consumer-Centric Perspective**

   The future study can be approached by studying immersive commerce through the lens of consumers by taking into consideration customer

perceptions, satisfaction, trust and real usage behaviour towards the consumers among the different demographics in India.

2. **Longitudinal Impact Analysis**

To determine the long-term effect of immersive commerce on customer loyalty, brand equity, and long-term business performance in comparison to short-term performance as defined by scholars, longitudinal studies could be conducted.

3. **Comparison of urban and rural and Tiers**

The use and success of immersive commerce in urban, semi-urban, and rural markets and /or Tier I, Tier II, and Tier III cities can also be compared in future studies.

4. **Technology-Specific Investigations**

The future study might offer the limited immersive technology such as AR, VR, MR, metaverse applications or AI-based immersive devices to assess their role in retail performance respectively.

5. **Specialized Retail Analysis**

It is also possible to conduct thorough studies on the subject matter, including researcher-initiated studies, on specific forms of retail (such as fashion, electronics, grocery, or healthcare) to get to know more about the opportunities and constraints of category-based immersive commerce.

6. **Cost-benefit and ROI Modelling**

Further research can generate some financial modeling to project the break even plans, cost effectiveness and break even on the investments of immersive commerce application in Indian retail.

7. **Digital Literacy Research and Consumer Preparedness**

Since it became evident that the issue of customer readiness has become one of the primary ones, the research that will be conducted next can examine the issue of digital literacy, technology anxiety, and learning curves as the aspects that define the adoption of immersive commerce among the Indian consumers.

8. **Inclusivity and Accessibility Research**

Future research can explore ways to make immersive commerce more accessible to older people, those with disabilities, and consumers with a lingual background.

9. **Policy and Regulatory Framework Analysis**

The impact of government policies, data protection laws, digital infrastructure initiatives, and regulatory support on the utilization of immersive commerce will be made available to the researchers.

10. **Comparative Cross Country Studies**

A comparative analysis of India and other new or developed economies may provide some hint of certain disparities in the context-related adoption of immersive commerce, and strategic performance.

11. **Organisational Readiness and Change Management**

Future research can look into internal organisational factors such as leadership support, employee training, change resistance and culture of innovation in using immersive commerce.

12. **Integration of Omni-channel and Phygital Retail Models**

Scientists have opportunities to define the integration of immersive commerce and omni-channel strategies and phygital customer experiences in order to offer consumers seamless customer experiences.

13. **Security, Confidentiality and Morality**

Cyber security threats, the attitude of consumers towards the use of their data, and the process of building the trust of consumers in an immersive commerce environment can be related to the future of the research.

14. **Influence of new technology**

How immersive commerce can be integrated with emerging technologies, such as blockchain, AI-driven personalization, IoT, and digital twins in retail, can be studied in the future.

15. **Mixed-Method and Experimental Methods**

Investigators may opt to adopt experimental research methods, case study, or a combination of the two research approaches to obtain more qualitative research and more quantitative research validation.

The given research opportunities can be utilized in the future to augment the existing research by developing the theory and offer valuable information about the active application of immersive commerce to Indian retailing.

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APPENDIX

Appendix I

Respected Sir/ Madam,

I am Anoop P, a research scholar pursuing my Ph.D. at the Research Department of Commerce and Management Studies, Farook College (Autonomous), Kozhikode, Kerala. This questionnaire is the foundation for my doctoral thesis titled "Opportunities and Challenges of Implementing Immersive Commerce Strategy in Modern Indian Retailing". This survey aims to collect accurate and reliable data regarding the successful implementation of Immersive Commerce in Indian Retail Sector. I assure you that all information provided will be kept confidential and used exclusively for my research. I kindly request your cooperation in completing the questionnaire. Thank you for your kind cooperation.

(To be filled by Retailers who is in adoption or familiarization with the Immersive Technologies in India).

PART A

Section1: Demographic Profile of Retailers
Please read the following and put a tick mark in the appropriate columns *(Tick only one option)*

1 Gender

☐ Male ☐ Female

2 Age

☐ 18-40 ☐ 41-60

☐ 60 Above

3 Educational Qualification

☐ School or Below ☐ Masters Degree

☐ Diploma ☐ Professional Degree

☐ Degree ☐ Ph.D

4 Year of Experience

☐ Less than 1 year ☐ 8-10 years

☐ 1-3 years ☐ More than 10 years

☐ 4-7 years

5 Position/Designation

☐ Owner ☐ Franchise Partner

☐ Manager ☐ Others

Section 2: Retail Characteristics
Please read the following and put a tick mark in the appropriate columns *(Tick only one option)*

6 Retail Format

☐ Brick & Mortar ☐ E-Commerce/M-Commerce

☐ Omni-Channel

7 Annual Turnover

☐ Less than 50 lakhs ☐ 5 Crore - 10 Crore

☐ 50 Lakhs - 1 Crore ☐ Above 10 Crore

☐ 1 Crore - 5 Crore

8 Location of Retail

☐ Bengaluru ☐ Chennai

☐ Mumbai ☐ Ahamedabad

☐ Delhi ☐ Indore

☐ Hyderabad ☐ Jaipur

☐ Pune ☐ Coimbatore

☐ Bhubaneswar ☐ Kochi/Trivandrum

9 Category of Retail

☐ Apparels and Fashions ☐ Furniture and Home Décor

☐ Electronics and Gadgets ☐ Beauty and Health care

☐ Grocery and FMCG ☐ Others

PART B

Section 1: Opportunities

10**.** Schedule for assessing the Opportunities of Implementing Immersive Commerce in Indian Retail Sector. Please indicate your level of agreement on the following statements by marking a tick in the relevant columns. (*SA indicates Strongly Agree, A indicates Agree, N indicates Neutral, D indicates Disagree, and SD indicates Strongly Disagree).*

Construct	Statement	SA	A	N	D	SD
Experiential Enhancement	1. Use of immersive technology enhances the in-store experience for customers.					
	2. Customers feel more engaged due to interactive digital features.					
	3. Immersive commerce creates a memorable shopping experience.					
	4. Visual immersion increases customer satisfaction.					
Product Positioning	1. Immersive commerce helps us display products more effectively.					
	2. Our product features are better communicated through AR/VR tools.					
	3. Digital environments allow innovative product presentation.					
	4. Customers can explore product options more clearly using immersive tools.					

Section 2: Customer Loyalty

11.Schedule for identifying the Customer Loyalty towards of Implementing Immersive Commerce in Indian Retail Sector. Please indicate your level of agreement on the following statements by marking a tick in the relevant columns. (*SA indicates Strongly Agree, A indicates Agree, N indicates Neutral, D indicates Disagree, and SD indicates Strongly Disagree).*

Construct	Statement	SA	A	N	D	SD
Perceived Value	1. Immersive experiences add value to customer interaction.					
	2. Customers perceive immersive commerce as useful.					
	3. Immersive technology increases the attractiveness of our brand.					
	4. The perceived benefits of immersive shopping are high.					
Consumer Engagement	1. Customers spend more time interacting through immersive features.					
	2. Gamified or interactive elements increase customer involvement.					
	3. AR/VR content keeps customers engaged throughout the visit.					
	4. Customers return to experience the immersive environment again.					
Reliability	1. Our immersive systems function consistently during operations.					
	2. The accuracy of product visualization in immersive tools is high.					
	3. Customers trust the immersive features for making purchase decisions.					
	4. Technical reliability enhances customer confidence.					

Section 3: Business Performance

12. Read each item carefully and then rate how much you agree with each item using a point Likert scale. Please mark your response as *SA for Strongly Agree, A for Agree, N for Neutral, D for Disagree, and SD for Strongly Disagree.*

Construct	Statement	SA	A	N	D	SD
Sales Growth	1. Sales have improved since implementing immersive commerce.					
	2. Immersive tools help convert interest into purchase.					
	3. High product visualization drives impulse purchases.					
	4. AR/VR features help upsell premium products.					

Customer Retention	1. Immersive features encourage repeat visits.					
	2. Loyal customers prefer immersive shopping environments.					
	3. AR/VR experiences build long-term relationships.					
	4. Personalization in immersive commerce improves retention.					
Trend Adaptation	1. We stay competitive by adopting immersive commerce trends.					
	2. Immersive technology positions us as an innovative retailer.					
	3. We regularly update our immersive features with new trends.					
	4. Competitor adoption pressures us to innovate using immersive tech.					

Section 4: Future Potentials

13. Read each item carefully and then rate how much you agree with each item using a point Likert scale. Please mark your response as *SA for Strongly Agree,A for Agree, N for Neutral, D for Disagree, and SD for Strongly Disagree.*

Construct	Statement	SA	A	N	D	SD
Innovation Capability	The team always experimenting with Immersive Technology					
	Exploration of new immersive commerce innovations is active in the outlet.					
	Innovation has important role in our immersive strategy.					
	Immersive commerce adopts creative business thinking.					
Growth Potential	1.Immersive commerce boosts long-term retail growth.					
	2.Immersive Commerce opens up new revenue channels.					
	3.Immersive Commerce foresee future Market Expansions					
	4. The growth of immersive commerce looks promising.					

Section 5: Challenges

14. Read each item carefully and then rate how much you agree with each item using a point Likert scale. Please mark your response as *SA for Strongly Agree, A for Agree, N for Neutral, D for Disagree, and SD for Strongly Disagree.*

Construct	Statement	SA	A	N	D	SD
Financial Constraints	1. Implementing immersive technology demands high investment.					
	2. Budget limitations restrict immersive technology adoption.					
	3. We face difficulty in justifying ROI for immersive commerce.					
	4. Financial risks prevent further expansion of immersive services.					
Technological Constraints	1. Access to advanced immersive technology is limited.					
	2. Technical glitches hinder customer experience.					
	3. We lack in-house expertise to manage immersive tools.					
	4. Dependence on external tech partners affects implementation.					
Infrastructural Blockage	1. Our current infrastructure is not suitable for immersive setup.					
	2. Space and layout limitations restrict AR/VR integration.					
	3. Lack of digital infrastructure affects immersive adoption.					
	4. Store upgrades are required for immersive tech compatibility.					
Consumer Readiness Issues	1. Many customers are not familiar with immersive interfaces.					
	2. Elderly customers find it difficult to use immersive tools.					
	3. Consumer hesitation limits usage of immersive features.					
	4. Lack of awareness among customers hinders adoption.					

Section 6: Risks and Barriers

15. Read each item carefully and then rate how much you agree with each item using a point Likert scale. Please mark your response as *SA for Strongly Agree, A for Agree, N for Neutral, D for Disagree, and SD for Strongly Disagree.*

Construct	Statement	SA	A	N	D	SD
Financial Risk	1. Immersive commerce may not yield sufficient ROI.					
	2. Investment in immersive tech carries financial uncertainty.					
	3. There's a risk of revenue loss due to poor tech performance.					
	4. We are cautious about spending due to cost-risk trade-offs.					
Operational Risk	1. Technical failures in immersive systems disrupt operations.					
	2. Integration with existing systems is risky.					
	3. Immersive features require constant maintenance.					
	4. We lack SOPs to handle immersive tech breakdowns.					
Security Risk Awareness	1. We are concerned about customer data security in immersive systems.					
	2. Cyber threats related to AR/VR are a major concern.					
	3. We take steps to ensure data privacy in immersive environments.					
	4. Lack of cyber security standards poses risk to immersive use.					
Customer Inclusivity	1. Some customer groups find it hard to access immersive commerce.					
	2. We struggle to make immersive experiences inclusive for all.					
	3. There are accessibility challenges for people with disabilities.					
	4. Language and cultural barriers reduce inclusivity in immersive features.					
Consumer Barriers	1. Not all customers have the interest or willingness to use immersive tools.					
	2. Many customers lack the digital skills to engage with immersive content.					
	3. Resistance to change limits immersive commerce adoption.					
	4. Consumer skepticism about virtual shopping affects usage.					
