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Editor's Letter

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We are pleased to present issue 56 of Mercados y Negocios, an edition that reaffirms our commitment to promoting rigorous research in management, business, and economics from a global perspective. This issue highlights the following contributions:

Komang Krishna Yogantara, I Ketut Yadnyana, I Putu Sudana, and I Ketut Sujana investigate how culture moderates the relationship between financial inclusion and financial performance, providing valuable insights into how cultural contexts influence the effectiveness of inclusion strategies.

Sankalp Dandawate, Palak Khanna, Amol Gawande, Atul Kumar, and Stuti Shukla present a study on the role of augmented reality in fashion retail, demonstrating how this technology enhances both consumer decision-making and engagement.

In the third article, Mudit Joshi and Disha Mathur investigate how experiential retail in the smartphone industry influences consumer behaviour and brand loyalty, shedding light on the impact of immersive brand experiences.

Avtar Singh provides a generational perspective on fintech adoption, addressing the challenges, demographics, and aspects of digital inclusion involved. This contribution is essential to understanding both the gaps and the opportunities that arise in the adoption of innovative financial services.

Finally, Verónica Crespo-Pereira and Eva Sánchez-Amboage reflect on the integration of the metaverse into omnichannel fashion retail, examining how the customer journey is being reshaped across hybrid and digital environments.

We extend our deepest gratitude to the authors for the rigour and creativity of their contributions, and to our readership for actively fostering the relevance and dissemination of this journal. The research presented here will stimulate fruitful academic and professional debates, while serving as a foundation for further studies and practical applications.

Sincerely,
Dr. José Sánchez Gutiérrez
Editor

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Culture is a moderator of the interaction between financial inclusion and financial performance

La cultura moderadora de la interacción entre la inclusión financiera y el desempeño financiero

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ABSTRACT

This study examines how the integration of local culture can enhance the connection between financial inclusion and the financial success of MSMEs in Bali. A survey was conducted on Hindu export-oriented MSME owners in Bali. Questionnaires, document analysis, and interviews were used to collect data, which were then analyzed using the SEM-PLS technique. The research findings show that, although financial services do not have a statistically significant effect, other results indicate a beneficial effect on financial performance. Additionally, local culture was found to strengthen this relationship. The study supports the Resource-Based Theory as a theoretical contribution, making it relevant in reducing barriers to the growth of MSMEs. The relevance of this article lies in providing new insights from the perspective of users, namely MSMEs, whose numbers are still relatively small, particularly in terms of utilising unique local genius values to enhance the interaction between financial inclusion and MSMEs' financial performance.

Keywords: Financial performance; Financial inclusion; Catur Purusa Artha culture; MSMEs.
Jel Code: D9, G2, G3

Culture is a moderator of the interaction between financial inclusion and financial performance

RESUMEN

Este estudio busca explorar cómo la aplicación de la cultura local puede fortalecer la relación entre la inclusión financiera y el desempeño financiero de las MIPYMES en Bali. Se realizó una encuesta a propietarios de MIPYMES hindúes orientadas a la exportación en Bali. Se utilizaron cuestionarios, documentos y entrevistas para recopilar datos, que posteriormente se analizaron mediante la técnica SEM-PLS. Los hallazgos de la investigación muestran que, si bien el uso de servicios financieros no tiene un impacto significativo, otros resultados mostraron un efecto beneficioso. Además, se demostró que la cultura local fortalece las relaciones. Como contribución teórica, el estudio respalda la Teoría Basada en Recursos, lo que la hace relevante para reducir las barreras al crecimiento de las MIPYMES. La relevancia de este artículo radica en brindar nuevas perspectivas, desde la perspectiva de los usuarios, es decir, las MIPYMES, cuyo número aún es muy reducido, especialmente el uso de valores locales únicos para fortalecer la interacción entre la inclusión financiera y el desempeño financiero de las MIPYMES.

Palabras clave: Desempeño financiero, Inclusión financiera, Cultura Catur Purusa Artha, MIPYMES.

Código JEL: D9, G2, G3.

INTRODUCTION

In a highly competitive business world, the operational sustainability of a company depends on financial performance; this applies to all lines of business, including Micro, Small, and Medium Enterprises (MSMEs), the smallest yet vital sector. For MSMEs to remain viable today and in the future, their capacity to enhance their financial performance is crucial. The issue of financial performance in the MSMEs segment is critical because it reflects the level of profitability achieved. A high level of profit allows MSMEs to develop their businesses more effectively.

Conversely, A low-profit level hinders MSMEs in fulfilling financial obligations, servicing debts, and increases the risk of bankruptcy. Suharman et al. (2022) said financial success encompasses multiple metrics of corporate efficacy, including revenue and sales. This suggests that analyzing multiple financial variables can provide a comprehensive understanding of the financial health of MSMEs. Ullah (2020) explains how financial difficulties affect employment growth and business sales. To improve the performance of MSMEs, strategic initiatives are necessary, including more efficient financial management, product and service diversification, market development, and the pursuit of innovative financial solutions.

The phenomenon that occurs is that MSMEs struggle to improve and typically face significant challenges. (Moscalu et al., 2020). MSMEs face various obstacles, but the primary one preventing them from doing better is financial access (Lakuma et al., 2019; Desmiyawati et al., 2023). Enhancing financial access across regions amplifies income-generating prospects and guarantees the availability of financial resources that support MSMEs in executing economic activities and mitigating risks (Yangdol & Sarma, 2019; Yogantara et al., 2024). This initiative aims to enhance the business productivity of MSMEs.

Referring to the Resource-Based Theory (RBT) proposed by Barney (1991), enterprises can leverage both valuable and potentially valuable resources, which can be material or intangible. Financial inclusion falls into the category of intangible resources, which aims to reduce barriers that hinder the growth of MSMEs and ultimately improve their financial performance. The judicious deployment of organizational resources enhances both the efficacy and efficiency of operational processes.

Although financial inclusion plays a vital role in the growth of MSMEs, not all MSMEs take advantage of it (Liu et al., 2021). This is demonstrated by the reality that a significant portion of the global population continues to be inadequately served by modern financial services (Ghosh & Vinod, 2017). Furthermore, the use of financial inclusion to drive the growth of

MSMEs remains very modest. This can be caused by several issues, including access to finance, incompatibility between financial products and market needs, and difficulties in securing financing (Owusu et al., 2021; Pranatasari et al., 2021).

In recent decades, research on financial performance and financial inclusion has become a significant subject of academic study. In Indonesia's recent G20 presidency, financial inclusion has become a top priority of the financial track. Numerous studies investigating the relationship between financial inclusion and financial performance in micro, small, and medium enterprises (MSMEs) have produced inconsistent findings.

Research indicates that financial performance is influenced by financial inclusion (Owusu et al., 2021; Eton et al., 2021; Kalaipriya Kalaieesan, 2021; Thathsarani & Jianguo, 2022). Conversely, various other findings confirm that financial inclusion is not effective for the financial success of MSMEs (Pranatasari et al., 2021; Amin & Pamungkas, 2022; Bhattacharyya et al., 2023; Marini et al., 2024).

Although the significance of financial inclusion has been extensively acknowledged, and prior research has identified several aspects that influence financial inclusion, cultural factors may not have been sufficiently considered, despite their considerable potential to support financial inclusion and encourage optimal financial outcomes for MSMEs. In Bali, the cultural role is significant and serves as a guiding philosophy and spirit in the conduct of business activities by business actors.

One of the cultures in the Sarasamuscaya book Sloka 262, which is applied in Bali, namely the Catur Purusa Artha (CPA) culture, is a unique local genius value regarding the purpose of humanoid life consisting of truth called Dharma, wealth called Artha, desire called Kama, and the highest happiness called Moksa (Kadjeng, 2010). These four dimensions are interconnected in forming the ideal balance of human life.

These four dimensions do not stand alone but complement each other. Dharma provides moral guidance to achieve Artha and Kama, supporting the journey to Moksa. The CPA culture can serve as a foundation for effective organizational management and is expected to enhance the correlation between the financial performance of MSMEs and their financial inclusion.

The majority of preceding articles are written from a macro perspective, with most studies focusing on country-level or overall economy and banking sector analysis (Adugna, 2024). However, research from the user’s perspective, such as MSMEs, is still relatively scarce. This study makes a substantial contribution and presents novel insights from the user standpoint, specifically MSMEs, whose numbers remain relatively small, particularly in

terms of leveraging unique local genius values to enhance the interaction between financial inclusion and MSMEs' financial performance.

Focusing on local genius values, this study offers new insights into how local characteristics can enhance the interaction between financial outreach and corporate financial health, providing a more holistic approach. It can guide policymakers and practitioners in designing agendas that are more appropriate to the needs of MSMEs and help formulate more effective strategies to support their growth in the financial sector.

This paper continues in the next section by conducting a literature review. Then, it introduces the theoretical framework and proposed hypotheses, covers the data collection methods, and provides a comprehensive analysis of the survey results. The paper concludes by discussing the theoretical and practical implications of the findings and offers suggestions for future research.

THEORETICAL FRAMEWORK

Resource-Based Theory (RBT)

RBT, also known as Resource-Based Theory, popularized by Barney (1991), is one of the most significant theories in the history of management theory, particularly in the context of indicator theory, which focuses on resources and capabilities. The primary assumption of this theory is that a corporation can earn increasingly substantial competitive advantages and achieve good financial and non-financial performance by possessing, monitoring, and utilizing strategic assets, including both intangible and tangible assets (Barney, 1991).

Resources and capabilities are two essential elements that companies must possess at the business level. RBT emphasizes what can make resources better and why competitors cannot easily get, create, or imitate better resources. The characteristics and capabilities of resources referred to as "strategic assets" are the answer. RBT also highlights that to comprehend and implement strategies aimed at enhancing the company's efficiency and effectiveness, it is necessary to refer to company-controlled resources, such as assets, processes, competencies, business attributes, knowledge, and information (Barney, 1991).

Company resources can originate from within or outside the organization. Internal resources include product management, development and study capabilities, culture, product organization, logistics, and low-cost development. Meanwhile, external resources, such as the supplier network, client demand, and technological changes (Kozlenkova et al., 2014), also play a role. A business that utilizes its resources effectively can create a competitive

advantage for the company compared to its peers. This advantage can manifest in the form of good business financial performance.

Financial Performance of MSMEs

Based on a company's ability to generate earnings, financial performance is assessed and measured. Fatihudin et al. (2018) defined financial performance as a business's ability to manage and utilize its resources effectively. Financial performance can reveal a business's financial status, allowing it to be determined whether it is good or bad, and can then be investigated using financial analysis techniques. The financial performance of MSMEs serves as a crucial determinant of a business's overall success and long-term viability. The assessment of financial performance plays a pivotal role in illustrating the financial conditions over a specific timeframe, encompassing various metrics of corporate efficacy (Widiatami et al., 2024).

MSMEs must evaluate their strategies before making critical decisions to enhance their financial performance. The significance of financial performance lies in its role as an indicator of the profitability of micro, small, and medium-sized enterprises (MSMEs). Zubair et al. (2020) found that the performance assessments of MSMEs are often carried out haphazardly.

This indicates that the awareness of performance evaluation among MSMEs remains relatively low. To keep contributing significantly to economic development, MSMEs must connect their financial performance to the broader external business environment. With the correct approach and assistance from numerous stakeholders, including the government and financial institutions, the current difficulties can be resolved. MSMEs can thrive, expand, and compete in the market when they have strong financial performance. Strategic initiatives are necessary to enhance the financial performance of MSMEs. MSMEs can significantly improve their financial performance by maximizing financial inclusion (Mamaro & Sibindi, 2022).

Financial Inclusion

Financial inclusion is an inclusive financing program that strives to deliver a wide variety of financial facilities to the underserved, low-income persons, and MSMEs. These services include capital credit, savings, financial transfer services, and insurance. In practice, microfinance is a form of program based on the concept of financial inclusion. Financial inclusion is a diverse and active topic. The three dimensions of the lens for promoting financial inclusion are access, use, and quality (Al-Eitan et al., 2022; Presidential Regulation of the Republic of Indonesia No. 114 of 2020). Financial inclusion has been globally acknowledged as one of the key options for firm growth, particularly for MSMEs (Mago & Chitokwindo, 2014).

Financial inclusion for MSMEs entails ensuring that these businesses have access to financial facilities tailored to their specific needs. Financial inclusion may serve as a pivotal element in the expansion and sustainability of enterprises. Enhanced access to finance and the utilization of banks for working capital financing will improve the financial performance of MSMEs (Bhattacharyya et al., 2023).

Utilizing banking for working capital financing offers advantages such as reduced interest rates, access to banking services, and increased funding availability. Policy makers, development organizations, and financial institutions can help MSMEs unlock their potential to drive inclusive and sustainable economic growth by addressing their needs and challenges in accessing financial services (Thathsarani & Jianguo, 2022). Based on the literature review discussed, this study posits the following hypothesis:

H1: Accessibility of financial facilities affects the financial performance of MSMEs in Bali.
H2: The use of financial facilities has an impact on the financial performance of MSMEs in Bali.
H3: The quality of financial facilities affects the financial performance of MSMEs in Bali.

Catur Purusa Artha (CPA) Culture

In the life of Balinese society, especially Hindus, some customs or teachings reflect various cultural concepts about life. One of the local cultural concepts in Bali about life, expressed in the verses of the Sarasamuscaya Book 261 – 262, is Catur Purusa Artha (CPA) (Kadjeng, 2010).

Catur Purusa Artha (CPA) encompasses values that guide the four goals of human life, considered practical in daily existence. The four goals of human life in CPA are stated in the verses, namely: Dharma, artha, kama, moksana sariram sadhanam, meaning the human body or ‘sarira’ may only be used as a tool to achieve truth (dharma), wealth (artha), desire (kama), and highest happiness (moksa).

Based on RBT, it is evident that a company's internal capabilities are crucial for managing its unique resources, enabling it to gain a competitive advantage. The Catur Purusa Artha (CPA) culture, derived from Hindu teachings in Bali, is an intangible asset that supports financial inclusion and encourages optimal financial performance among MSMEs in Bali. In the Bali area, culture plays a decisive role and serves as a guiding philosophy for corporate actors in their business activities.

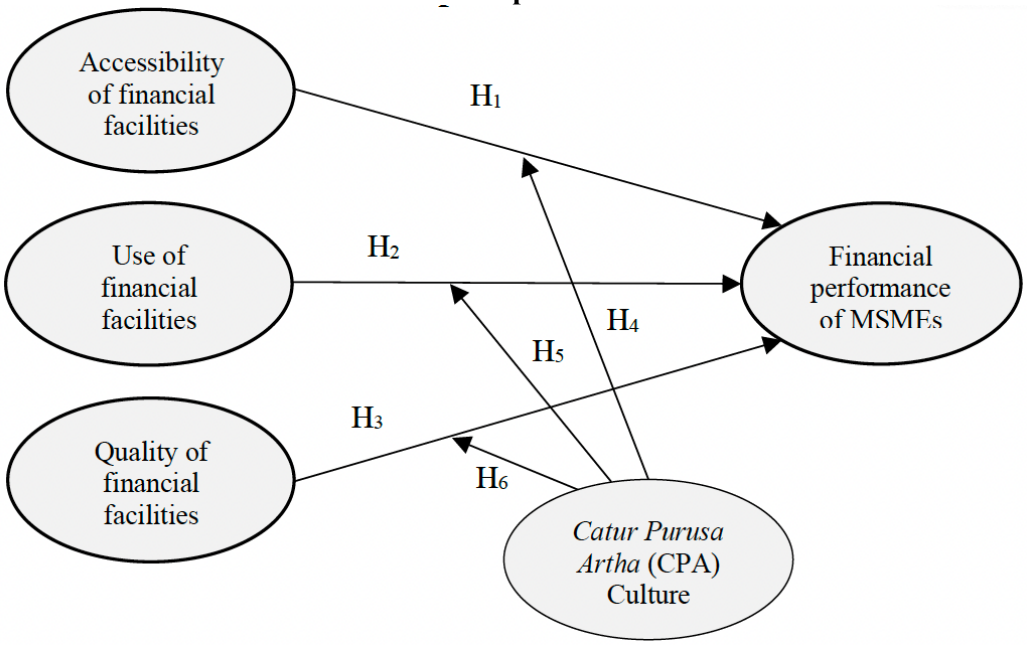
The CPA culture, if appropriately implemented, can strengthen the relationship between the accessibility of financial services (referring to the extent to which the financial system

penetrates) and the financial performance of MSMEs. Makdissi et al. (2020) explained that culture has been proven to be important in stimulating MSMEs.

Positive values in local culture can help an organization improve its financial performance. Implementation of the CPA culture will encourage members and company management to make better decisions to support the company's performance. Based on the literature review and theoretical research framework, as presented in Figure 1, the following hypotheses are formulated:

H4: The role of Catur Purusa Artha (CPA) culture in strengthening the interaction between accessibility of financial facilities and financial performance of MSMEs in Bali.
H5: The role of Catur Purusa Artha (CPA) culture in strengthening the interaction between the utilization of financial facilities and the financial performance of MSMEs in Bali.
H6: The role of Catur Purusa Artha (CPA) culture in strengthening the interaction between the quality of financial facilities and the financial performance of MSMEs in Bali.

Figure 1
Conceptual framework



Source: Own elaboration.

RESEARCH METHODOLOGY

Data and Sampling

This investigation uses quantitative methods to investigate the fundamental interaction between these variables. The study population was 152 export-oriented MSMEs in Bali Province, registered with the Bali Provincial Cooperatives, Small and Medium Enterprises

Office in 2023. By focusing on export-oriented MSMEs, this study can provide valuable insights into how financial inclusion contributes to enhancing financial performance and strengthening their position in the global market. It can also offer practical recommendations to stakeholders to support the growth of MSMEs.

Data was collected according to the specified sample size based on the following criteria: (1) Proprietor and administrator of export-focused micro, small, and medium enterprises. This approach facilitates a deeper comprehension of the internal dynamics and decisions that impact business success. (2) The owner and manager of the UMKM are Hindu. This determination is based on the respondents' greater familiarity with the culture used in this study, specifically Catur Purusa Artha (CPA). A total of 110 samples were generated using these predetermined criteria.

Instruments of Research and Measurement

The investigation of the accessibility, utilization, quality of financial services, and financial performance of MSMEs employs measurement techniques that have been established, tested, and verified by prior researchers. The instrument used to measure the accessibility of financial facilities was adapted from the research of Banerjee and Donato (2021), and Kalaipriya Kalaieesan (2021).

Next, the items used to measure the utilization of financial services were modified from those used by Eton et al. (2021) and Thathsarani and Jianguo (2022). Financial service quality was measured using items constructed and modified from those of Owusu et al. (2021), and Thathsarani and Jianguo (2022). The financial performance of MSMEs was developed as a modified result of the study by Al-Matari et al. (2014), and Thathsarani and Jianguo (2022).

A new instrument was developed and validated to measure CPA culture. Academic experts and Catur Purusa Artha cultural experts agreed upon this during a Focus Group Discussion (FGD) held on Tuesday, April 16, 2024, at the Puri Saron Hotel in Denpasar, Bali. This stage was used to eliminate interpretational confounding of the CPA instrument.

The CPA culture is the primary teaching in Hindu philosophy, which consists of four goals for human life. These four dimensions are interconnected in forming an ideal balance of human life. The agreement obtained yielded the following indicators, operational definitions, and statement items, as shown in Table 1.

Table 1
Experts agree upon the validity of the content of the Catur Purusa Artha culture

No	Indicator	Operational definition	Statement item
1	*Artha* for *artha*	If associated with financial performance, namely the profit obtained by MSMEs. *Artha* for *artha* refers to the results of MSMEs efforts that should be reinvested in wealth-generating activities (artha) to foster further development.	1. I am passionate about developing my business in order to increase profits to develop my business sustainably (CPA_1) 2. I am passionate about developing my business in order to make costs more efficient to develop my business sustainably (CPA_2) 3. I am passionate about investing wisely for long-term wealth growth (CPA_3)
2	*Artha* for *dharma*	If associated with financial performance, namely the profit obtained by MSMEs, *Artha* for *dharma* is the results of MSMEs efforts that should be allocated to achieve truth (*dharma*).	1. I am enthusiastic about developing my business in order to increase profits to be performed as a manifestation of *Panca Yadnya* (CPA_4) 2. I run my business with the principle of honesty (CPA_5) 3. I run my business by complying with applicable regulations (CPA_6)
3	*Artha* for *kama*	If associated with financial performance, namely the profit obtained by MSMEs, *Artha* for *kama* reflects the fulfillment of material needs, therefore part of the MSMEs business results should be allocated to achieve desires (*kama*).	1. I am passionate about developing my business so that I can enjoy the results (CPA_7) 2. I want the business I have to be able to increase customer satisfaction (CPA_8) 3. I find a balance between saving for the future and enjoying current satisfaction in my spending (CPA_9)
4	*Moksa,* inner and outer happiness *(jiwa mukti)*	If it is associated with financial performance, namely the profit obtained by MSMEs, *Moksa* represents the spiritual freedom achieved, the results of MSMEs efforts should therefore be used for physical and spiritual happiness (*jiwa mukti*).	1. The business that I own and run gives me happiness both physically and mentally (CPA_{10}) 2. I invest responsibly by considering the long-term impact of every financial decision I make (CPA_{11}) 3. I view my wealth as a tool to achieve freedom and well-being, not just for personal gain (CPA_{12})

Source: Own elaboration

Sample Size and Population

The questionnaire was first tested (pilot study). The trial is conducted on a small representative sample to identify invalid or ambiguous items. The trial was conducted on 36 Hindu student respondents. Furthermore, the pilot study (trial) results are measured for validity and reliability. The data obtained is analyzed to evaluate the performance of each item.

The results of the pilot test for construct validity, presented in Table 2, indicate that the research instrument possesses a loading factor value exceeding 0.70, thereby confirming the applicability of all instruments in this study. The pilot construct reliability test indicates that Cronbach's Alpha (α) exceeds 0.70, so the study data is deemed very trustworthy for inclusion in the data analysis procedure. The outcomes of this test can establish a robust foundation for creating a CPA culture measurement tool, which will be applied in the principal study.

Table 2
Recapitulation of the validity and reliability test of the pilot test construct

Construct	Item	*OL*	*CR*
Accessibility of financial facilities	Aff 1.1	0.760	0.853
	Aff 1.2	0.775	
	Aff 1.3	0.748	
	Aff 1.4	0.858	
	Aff 1.5	0.821	
Use of financial facilities	Uff 2.1	0.763	0.873
	Uff 2.2	0.911	
	Uff 2.3	0.912	
	Uff 2.4	0.814	
Quality of financial facilities	Qff3.1	0.815	0.891
	Qff 3.2	0.920	
	Qff 3.3	0.847	
	Qff 3.4	0.789	
	Qff 3.5	0.771	
Financial performance of MSMEs	Fp1	0.870	0.929
	Fp 2	0.849	
	Fp 3	0.826	
	Fp 4	0.797	
	Fp 5	0.773	
	Fp 6	0.873	
	Fp 7	0.872	
	Fp 8	0.874	
	Fp 9	0.823	
The Culture *of Catur Purusa Artha* (CPA)	CPA1	0.843	0.961
	CPA2	0.701	
	CPA3	0.743	
	CPA4	0.811	
	CPA5	0.866	
	CPA6	0.914	
	CPA7	0.910	
	CPA8	0.911	
	CPA9	0.891	
	CPA10	0.923	
	CPA11	0.802	
	CPA12	0.727	

Source: Own elaboration.

Based on the previous explanation, the overall indicators used are shown in Table 3. All items are rated on a five-point Likert scale, where option five indicates “strongly agree” and option one indicates “strongly disagree”.

Table 3
Indicators used

Construct	Indicator
Accessibility of financial facilities	1. Strategically located financial institutions 2. Knowing the financial services provided by financial institutions 3. Financial services are easy to access 4. Using the internet to access financial services 5. Financial institutions create guidelines on procedures for accessing financial services.
Use of financial facilities	1. Use of financial institution facilities such as taking out loans to meet needs and manage business finances 2. Ownership of financial institution accounts 3. Regularity of use of financial institution products 4. Frequency of use of financial institution products
Quality of financial facilities	1. Suitability of financial institution products with MSME needs 2. Convenience in using the product 3. Speed in completing financial transactions 4. Security in using financial institution products 5. Ease of use of financial products
Financial performance of MSMEs	1. Funding rule 2. Cash obtainability 3. Punctuality in paying duties 4. Inventory organization effectiveness 5. Ability to generate profits
The Culture *of Catur Purusa Artha* (CPA)	1. *Artha* for *artha* 2. *Artha* for *dharma* 3. *Artha* for *kama* 4. *Moksa,* inner and outer happiness *(jiwa mukti)*

Source: Own elaboration.

Data Analysis Procedures

The analysis method of this investigation is Partial Least Squares (PLS) Structural Equation Modelling (SEM) evaluated using SmartPLS 4.1.1.2 software. SEM analysis is best understood by examining the fundamental interaction between endogenous and exogenous variables (Hair et al., 2021). Two assessments were performed to enhance the validity and reliability of the instrument. Cronbach's alpha was used to evaluate the reliability and item correlation, emphasizing internal consistency. The reliability analysis was conducted before testing the future model, and the normal Cronbach's alpha value was 0.7.

Three tests are used in this examination: (1) examination of the dimension model or outer model, which is essential to ensure that the indicators used are valid and reliable; (2) examination of the inner model or structural model, which aims to test the relationship among latent variables; and (3) hypothesis testing, also known as bootstrapping. Bootstrapping can help you better understand the significance of the relationship between variables and analyse moderating variables (Ghozali, 2021).

RESULTS

Descriptive Statistics

Respondent characteristics refer to data collected from respondents to identify their profiles within the research. Based on the results of data collection, Table 4 displays the profile of the research respondents.

Table 4
Appearances of study

Classification		Number of people who answered	%
Company categories	Micro	72	65.45
	Small	33	30.00
	Intermediate	5	4.55
	Total	110	100
Length of business	0-5 years	27	24.55
	6-10 years	48	43.64
	11 years and above	35	31.82
	Total	110	100
Age of respondents	21-30	19	17.27
	31-40	47	42.73
	41-50	37	33.64
	51<	7	6.36
	Total	110	100
Gender	Man	40	36.36
	Woman	70	63.64
	Total	110	100
Level of education	Basic school	0	0.00
	Children's high school	0	0.00
	Older High School	15	13.64
	Diploma I	1	0.91
	Diploma II	0	0.00
	Diploma III	8	7.27
	Diploma IV/Bachelor	86	78.18
	Master	0	0.00
	Total	110	100

Source: Own elaboration.

The sample size refers to the scale/size of the company, and Table 4 indicates that micro-businesses represent the most significant proportion of respondents, specifically 65.45%. This highlights that the majority of MSMEs' growth is concentrated in micro-enterprises. Regarding business longevity, the 6-10 year category accounts for the highest percentage at 43.64 percent, suggesting that export-oriented MSMEs possess considerable experience in the export process.

The number of samples based on age is dominated by MSME owners aged 31-40, totaling 47 (42.73%). This suggests that entrepreneurial interest in Bali is primarily driven by millennials, who tend to exhibit a greater propensity for risk-taking. Based on gender, women

dominate export-oriented MSMEs, comprising 63.64% of respondents compared to 36.36% for men. This trend signifies a growing number of female entrepreneurs in the export-oriented MSMEs sector across Bali Province. Finally, the respondents' profiles, based on education level, are primarily comprised of respondents with Diploma IV/Bachelor's degrees, at 78.18 per cent. This indicates the significant role of higher education in the success and sustainability of MSME actors.

Evaluation of Outer Model/ Measurement Model

Outer model analysis was conducted to ensure that the measurement was appropriate for use. Measurement model testing shows convergent and discriminant validity. If the reflexive correlation exceeds 0.70, it is considered high. However, for early-stage research in scale creation, an external filling value of 0.5–0.60 is considered sufficient (Chin et al., 2003).

Table 5
Outer model analysis

Construct	Item	*OL*	AVE	*CR*
Accessibility of financial facilities	$Aff_{1.1}$	0.804	0.653	0.895
	$Aff_{1.2}$	0.729		
	$Aff_{1.3}$	0.846		
	$Aff_{1.4}$	0.867		
	$Aff_{1.5}$	0.790		
Use of financial facilities	$Uff_{2.1}$	0.968	0.706	0.961
	$Uff_{2.2}$	0.830		
	$Uff_{2.3}$	0.965		
	$Uff_{2.4}$	0.968		
Quality of financial facilities	$Qff_{3.1}$	0.841	0.874	0.949
	$Qff_{3.2}$	0.854		
	$Qff_{3.3}$	0.834		
	$Qff_{3.4}$	0.836		
	$Qff_{3.5}$	0.837		
Financial performance of MSMEs	Fp_1	0.975	0.945	0.995
	Fp_2	0.976		
	Fp_3	0.990		
	Fp_4	0.967		
	Fp_5	0.985		
	Fp_6	0.947		
	Fp_7	0.977		
	Fp_8	0.958		
	Fp_9	0.974		
The Culture *of Catur Purusa Artha* (CPA)	CPA_1	0.949	0.913	0.996
	CPA_2	0.952		
	CPA_3	0.957		
	CPA_4	0.955		
	CPA_5	0.958		
	CPA_6	0.961		
	CPA_7	0.964		
	CPA_8	0.959		
	CPA_9	0.961		
	CPA_{10}	0.943		
	CPA_{11}	0.965		
	CPA_{12}	0.944		

Source: Own elaboration.

The outer loading value serves to assess the convergent validity of each variable. Table 5 indicates that each item exhibits an external loading value exceeding 0.5. This indicates that all research indicators have met the criteria for convergent validity. All of the research variables are reliable, as indicated by the composite reliability value, which exceeds 0.70. Subsequently, discriminant validity was evaluated to examine the measurement model. Table 6 presents the findings of the HTMT test. This investigation has achieved discriminant validity if all values are found to meet the criteria of not exceeding 0.90 (Hair et al., 2021).

Table 6
HTMT (Discriminant Validity)

Construct	Aff	CPA	Fp	Qff	Uff
Aff					
CPA	0.047				
Fp	0.363	0.215			
Qff	0.550	0.097	0.251		
Uff	0.300	0.054	0.133	0.341	

Source: Own elaboration.

Structural Model/Inner Model Evaluation

At the beginning of the model evaluation with PLS, the R-squared for each dependent latent variable was observed. Table 7 shows that the profitability determination coefficient yields an R-squared value of 0.385. This indicates that the dependent variable can only be explained by the independent variable and moderation by 38.5 percent. Other variables not discussed represent the remaining 61.5 percent.

Table 7
Model Suitability Test R-Square (R2)

Variables	R-Square
Financial performance of MSMEs (dependent variable)	0.385

Source: Own elaboration.

Subsequently, assess the predictive relevance of Q-square for the construct model in conjunction with the R-square value. The quality of the experience value created by the parameter estimates and their models is evident in the Q-square results. The presentation of the Predictive Relevance Q-Square (Q2) can be seen below:

$Q^2 = 1 - (1 - R^2)$
$= 1 - (1 - 0.385)$
$= 1 - (0.615)$
$= 0.385$ (strong model)

The calculation results show a Q^2 value of 0.385, which is greater than 0, indicating that the structural model has strong predictive relevance. Goodness of Fit or GoF is the result of general validation for the model. According to Ghozali (2021), Goodness of Fit or GoF is

measured with a score of 0.36 (large GoF), 0.25 (moderate GoF), and 0.10 (small GoF). The following is a display of calculations based on GoF.

GoF $= \sqrt{(AVE \times R^2)}$

$= \sqrt{[\{(0.653+0.913+0.945+0.706+0.873)/5\} \times \{0.385\}]}$

$= \sqrt{0.818 \times 0.385}$

$= \sqrt{0.31493}$

$= 0.561$ (GoF *large*)

The calculation results indicate that the structural model is in good condition, with a Goodness of Fit (GoF) value of 0.561, placing it in the large category. The final test is hypothesis testing. Conducted in two stages: direct effect testing and moderation effect testing. Testing is done by comparing P values, t-statistics, and observing the original sample in the path coefficient table. If the p-values <0.05, then the variable is declared to have an effect. Table 8 presents the results of the hypothesis testing.

Table 8
Outcomes of Research Hypothesis Testing

Influence	Coef. Track	Stdev	t *statistics*	P *values*	F-Square	Information
Aff –> Fp	0.208	0.101	2.072	0.038	0.047	H_1 Accepted
Uff –> Fp	0.022	0.115	0.192	0.848	0.001	H_2 Rejected
Qff –> Fp	0.254	0.129	1.984	0.048	0.065	H_3 Accepted
CPA x Aff –> Fp	0.261	0.163	2.555	0.011	0.038	H_4 Accepted
CPA x Uff –> Fp	0.384	0.192	2.000	0.046	0.070	H_5 Accepted
CPA x Qff –> Fp	0.319	0.124	2.575	0.010	0.104	H_6 Accepted

Source: Own elaboration.

The study's findings on the effect of accessibility of financial facilities on the financial performance of MSMEs in Bali revealed a path coefficient of 0.208 and a significance value of 0.038. Thus, it can be concluded that the accessibility of financial facilities has a positive impact on the financial performance of MSMEs in Bali, with an influence size of 0.047. The outcomes indicate that H1 is accepted.

The path coefficient value is 0.022, and the significance value is 0.848, indicating the influence of financial facilities on the financial performance of MSMEs in Bali. The results show that the significance value is more than 0.05, so H2 is rejected. Finally, with a path coefficient of 0.254 and a significance value of 0.048, the results show that the quality of financial facilities positively affects the financial performance of MSMEs in Bali, with an effect size of 0.065. These results indicate that H3 is accepted.

With the moderation of CPA culture, the path coefficient of 0.261 and the significance value of 0.011 were observed in the interaction between the accessibility of financial facilities and the financial performance of MSMEs. The results showed that the significance value was smaller than 0.05, indicating that the hypothesis was proven true: the role of CPA culture strengthens the interaction between the accessibility of financial facilities and the financial

performance of MSMEs in Bali. Therefore, the direct influence coefficient of 0.038 is smaller than 0.05, and the moderation influence coefficient of 0.011 is smaller than 0.05, indicating that the moderation nature of the role of CPA culture is quasi-moderation.

A study examining the impact of financial facilities on the financial performance of MSMEs, moderated by CPA culture, revealed a path coefficient of 0.384 and a significant value of 0.046. The results suggest that, although the direct influence may not be evident, CPA culture can attenuate the impact of financing facilities on the financial performance of MSMEs. This analysis reveals that the essence of CPA culture is characterized by moderation.

Finally, with the moderation of CPA culture, the path coefficient value is 0.319, and the significance value is 0.010. The result confirms that the hypothesis is supported: CPA culture strengthens the interaction between financial service quality and the financial performance of MSMEs in Bali, with a significant value of 0.048, which is less than 0.05. Therefore, the test result shows that the nature of CPA moderation is quasi-moderation, as both the direct effect coefficient (0.048) and the moderation effect coefficient (0.010) are less than 0.05.

DISCUSSION

This study investigates the impact of financial inclusion on the financial performance of MSMEs in Bali. Additionally, it examines the role of Catur Purusa Artha (CPA) culture in fostering stronger relationships. The issue of financial performance in the MSME sector is critical. Strengthening financial access, often a significant obstacle for MSMEs, can increase opportunities to generate income and ensure the provision of financial facilities that help MSMEs.

The role of CPA culture, which serves as a foundation, philosophy, and spirit in managing an organization, is expected to enhance the interaction between financial inclusion and the financial performance of MSMEs, particularly in Bali. Based on the Resource-Based Theory (RBT), company resources, such as financial access and the role of culture, are effectively utilized to reduce obstacles that hinder the growth of MSMEs, ultimately improving their financial performance.

The results of this investigation reveal that, based on direct testing of financial facility accessibility practices, it plays a significant role for managers and business owners in advancing the financial performance of MSMEs in Bali. With easier access to financial facilities, MSMEs have more resources to finance their business operations, develop their businesses, and ultimately improve their financial performance.

The results of this investigation align with those of previous studies (Kalaipriya Kalaieesan, 2021; Thathsarani & Jianguo, 2022), which have found that financial access is the most critical factor influencing the growth and survival of MSMEs. Greater accessibility can provide competitive advantages and open up new revenue streams for MSMEs (Wijaya et al., 2025).

There is a positive correlation between the financial performance of MSMEs in Bali and the quality of financial facilities. This indicates that the performance of MSMEs in Bali improves along with an increase in the quality of financial facilities. With access to quality financing, MSMEs can develop and create new products or services. This innovation increases the competitiveness and market potential of MSMEs.

Providing reasonable and affordable quality financial services conveniently, our solution not only facilitates MSMEs' capital needs but also contributes to overall business management and development. Thus, the financial performance of MSMEs can improve, contributing to broader economic growth. The findings of this study align with those of Thathsarani and Jianguo (2022), which showed that the quality of financial institutions influences the degree of financial inclusion, thereby enhancing the financial performance of MSMEs. The quality of available products also provides evidence of the profitability and growth of MSMEs (Eton et al., 2021; Owusu et al., 2021). In addition, with the improvement in the quality of financial facilities, MSMEs can achieve stability, growth, and a competitive advantage (Carè et al., 2025; Satpathy et al., 2025).

The financial performance of MSMEs in Bali is not affected by the use of financial facilities. Evidence suggests that the use of financial facilities does not significantly impact the financial performance of MSMEs in Bali. The use of financial facilities does not have an impact on financial performance due to the lack of financial knowledge. Although MSMEs have access to financial facilities, their effectiveness in utilizing these services is hindered if they lack adequate information about financial management. In addition, many MSMEs rely on internal financing, such as personal savings, previous business income, or relatives or family members who provide profitable loans.

Most MSMEs operate on the principle of avoiding borrowing, particularly from banks and financial institutions, because it is considered to increase the burden of existing financing. If experiencing economic problems, another option is to borrow from relatives or family members who do not have a complicated scheme, and the installments are manageable. Given their limited business scale, export-oriented MSMEs in Bali that are still in the early stages may not feel a significant impact from the use of financial facilities because of their limited business scale. At this stage, performance improvements are more influenced by their ability to build markets and operational efficiency.

Previous studies (Amin & Pamungkas, 2022; Suminah et al., 2022; Marini et al., 2024) have shown that formal MSMEs are unprepared to leverage financial facilities in such circumstances. Although access to these facilities exists, their utilization is not necessarily adequate to positively influence the financial performance of MSMEs in Bali. The same results indicate that the use of digital financial services, lending platforms, and technology adoption can harm the overall financial performance of MSMEs due to varying levels of basic digital facilities and regulatory support (Abu et al., 2025; Ciza et al., 2025).

Moderation testing indicates that CPA culture contributes to enhancing the accessibility, quality, and utilization of financial facilities, hence impacting the financial performance of MSMEs in Bali. Hindu export-oriented MSME actors and managers practice the CPA culture as a local genius. They can leverage financial access more efficiently, hence enhancing the positive correlation between financial inclusion and financial performance.

This concept is relevant in Hindu culture in Bali and can be applied universally because it contains fundamental values suitable for modern life. These four values complement each other and provide comprehensive guidance for living a harmonious life. If applied universally, Dharma (truth) ensures that humans live with morality, Artha (wealth) provides a strong economic foundation, Kama (satisfaction) ensures emotional balance, and Moksa (happiness) directs humans towards true peace and happiness.

To achieve Dharma (truth), implementation is carried out by understanding the importance of social responsibility, which will increase the likelihood of utilizing and realizing the quality of financial services for sustainable investment. This can create added value, build a strong reputation, and attract more customers, ultimately contributing to improved financial performance. To implement the second part and achieve Kama (desire), MSMEs can utilize financial services to optimize their product offerings more effectively. By obtaining the correct information and support from financial institutions, MSMEs can develop products that meet market demands, increase sales and financial performance, and ultimately achieve the desired results.

The execution of the third component is employed to conduct business inside the Artha sector (wealth) to facilitate its growth; thus, it is essential to comprehend access to financial resources and the utilization of suitable financial instruments. Therefore, the value of understanding Artha lies in the spirit of developing a business to make costs efficient and the spirit of investing wisely for long-term wealth growth, thereby increasing profits and expanding the business sustainably.

Culture is a moderator of the interaction between financial inclusion and financial performance

The implementation of the last part of Moksa is physical and spiritual happiness (jiwa mukti), namely understanding that access to good financial facilities can reduce financial pressure, effective use of financial facilities can reduce financial burdens and increase stability, and understanding quality financial services provide good solutions and support that reduce financial risk and stress for MSME owners. By integrating the cultural values of Catur Purusa Artha (CPA), MSMEs can utilize financial services more effectively and establish a robust foundation for ethical and sustainable growth, thereby strengthening their financial performance.

CONCLUSIONS

The investigation results indicate that while the accessibility and quality of financial facilities influence the financial performance of MSMEs in Bali, the consumption of these facilities does not impact their financial performance. This results from various issues, including their insufficient understanding of money management. Another reason is that for many MSMEs that rely on internal financing, external financing is seen as increasing their financing burden.

Additionally, other notable results include the cultural values of Catur Purusa Artha (CPA), which are implemented as a guiding philosophy. The enthusiasm of business actors in conducting their business activities can play a crucial role in strengthening these relationships, especially with MSMEs in Bali.

By integrating local cultural values, this study provides theoretical contributions to enrich academic research on financial inclusion and financial performance of MSMEs. It raises the idea of Catur Purusa Artha. It offers a new perspective on understanding economic behavior and financial decision-making in Bali, a topic that is rarely discussed in depth in academic literature.

The results of this study also have practical implications for many stakeholders, especially MSMEs, governments, and financial institutions. This study is expected to benefit MSMEs in Bali by providing them with a competitive advantage and enhancing their financial performance. To achieve this, MSMEs must be able to gain access to quality financial facilities tailored to their needs, or access to good financial facilities can be utilized as a form of effective resource management. With improved access to and utilization of financial services, MSMEs can optimize their capital structure, reduce their dependence on internal funding sources, and become more efficient in utilizing external capital for growth.

This study can also help the government and financial institutions develop pro-MSME policies and improve financial access. The government can simplify regulations related to

business licensing, business registration, or administrative requirements for obtaining credit and other financial facilities. This will reduce the barriers confronted by MSMEs in accessing formal financial facilities.

Financial institutions are expected to develop financial products that align with the needs of MSMEs, such as micro-credit products with more flexible tenures, business insurance products, and the optimization of financial technology to expand the reach of services, as well as invoice-based financing services. Considering these consequences, both the government and financial institutions can actively participate in building an inclusive financial ecosystem and supporting the growth of MSMEs. This will have a positive impact on overall economic growth.

Although our study provides valuable insights, it is not without limitations. When determining the sample using export-oriented MSMEs, they generally exhibit characteristics different from those of MSMEs that focus solely on the domestic market. Further research is suggested to involve MSME samples that focus on the domestic market so that they can provide more holistic recommendations to support the development of MSMEs in various orientations and market segments. Furthermore, MSMEs can utilize financial facilities; however, their success will depend on having sufficient information about financial management. Based on this, further research is recommended on how financial literacy can be integrated with financial facilities to enable MSMEs to manage and develop their businesses more effectively.

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ABSTRACT

The present study investigated the impact of Augmented Reality (AR) across consumers in the fashion industry by examining the role of AR strategies in the purchasing routine of consumers in India, investigating the impact of AR technologies on the digital populace, and exploring the factors associated with the purchasing decision. In addition, the effect of AR on consumer engagement is illustrated. A quantitative methodology research approach was applied, and data were collected from 200 consumers using a purposive sampling technique with the aid of a structured questionnaire. The quantitative data were analysed using the SPSS tool version 23 package by performing ANOVA, frequency, and correlation analysis. The outcomes of the study revealed that perceived benefits of AR, likely authenticity, and return rates impact consumer decision-making strategies. Furthermore, discovered the determinants to improve the buyer's decision effectively. The research study implies that the brands should adopt AR strategies to integrate with the values and choices of consumers to nurture a sustainable association. Overall, the study recommends effective implementation of AR technologies to provide enhanced shopping experiences through the amalgamation of physical atmosphere and digital systems.

Keywords: Augmented Reality (AR), Consumer Decision-Making, Fashion Industry, Digital Marketing, Consumer Engagement.
Jel Code: M30, M31

RESUMEN

El presente estudio investigó el impacto de la Realidad Aumentada (RA) en los consumidores de la industria de la moda, examinando el papel de las estrategias de RA en la rutina de compra en India, investigando el impacto de las tecnologías de RA en la población digital y explorando los factores asociados a la decisión de compra. Además, se ilustra el impacto de la RA en la interacción del consumidor. Se aplicó un enfoque de investigación con metodología cuantitativa y se recopilaron datos de 200 consumidores mediante una técnica de muestreo intencional con la ayuda de un cuestionario estructurado. Los datos cuantitativos se analizaron con el paquete SPSS versión 23 mediante análisis de ANOVA, frecuencia y correlación. Los resultados del estudio revelaron que los beneficios percibidos de la RA, la probable autenticidad y las tasas de retorno, influyen en las estrategias de toma de decisiones del consumidor. Además, se identificaron los determinantes para influir eficazmente en la decisión del comprador. El estudio de investigación sugiere que las marcas deberían adoptar estrategias de RA para integrarse con los valores y preferencias de los consumidores y fomentar una conexión sostenible. En general, el estudio recomienda la implementación efectiva de tecnologías de RA para brindar experiencias de compra mejoradas mediante la integración del entorno físico y el sistema digital.

Palabras clave: Realidad aumentada (RA), toma de decisiones del consumidor, industria de la moda, marketing digital, participación del consumidor.

Código JEL: M30, M31

INTRODUCTION

The fashion industry has been at the forefront of innovation, continuously evolving to meet the changing requirements and preferences of consumers (Carvalho & Abreu, 2023; Nair & Kumar, 2025). The rapid evolution of technology, specifically in the digital world, has led to the rise of AR as a crucial development. It enhances the buying experience by integrating the digital system into the physical world (Irfan Rais, 2025). It creates immersive and interactive environments. In the fashion industry, consumer behaviour has undergone a substantial transformation. Conventionally, consumers physically interacted with products before purchase, and shopping was one of the tactile experiences (Atique, 2024). The evolution of e-commerce and digital technology has changed this paradigm. Online shopping has delivered convenience to consumers, but it has also presented challenges associated with the visualisation and fitting of products (Mekonnen, 2024; Naeem, 2025).

The digital transformation, brought about by the introduction of social media platforms and smartphones, has led to varied consumer behaviour and engagement in the fashion industry (Sagar, 2024; Wu, 2024). According to a statistical report from Statista, e-commerce sales are expected to reach nearly $6.3 trillion by 2024. It highlights the significance of online retailing.

The consumer’s usage of online platforms has increased due to their shopping requirements and a desire for experiences that replicate the sensory experience of in-store shopping. Consumers, specifically Gen Z and Millennials, demand more from products (Trivedi, 2023). The generation is craving authenticity, interactivity and personalisation. A report by Accenture shows that almost 91 per cent of consumers are likely to shop in brands that provide personalised offers and recommendations (Rainsberger, 2023).

AR is termed a technology that superimposes sounds, images, and data generated by the computer. It adopts the data into the real world with the support of devices, such as AR glasses and smartphones. In the fashion sector, AR enables consumers to visualise how accessories and clothing will look even before trying them on (Nandhakumar et al., 2025). Interactive advertisements, virtual fitting rooms, and mobile applications facilitate the implementation of AR technology (Idrees et al., 2023).

The most notable beneficiary of AR in the fashion industry is virtual experience. Brands such as Warby Parker have established technology through eyewear, allowing consumers to virtually try on products and see how they match their colour tones (Taherdoost, 2023). These applications enhance consumer engagement and mitigate the risk of uncertainty associated with online purchases.

Therefore, AR play a dominant role in the marketing strategies in the fashion industry. Brands are adopting AR for interactive marketing in the fashion sector. It captures the consumer engagement and attention. Gucci has implemented AR features in its application, enabling users to see how different types of shoes look on their feet before making a purchase. The campaigns enhance brand visibility and foster a deeper emotional connection with customers (Jiang & Lyu, 2024).

Figure 1
AR in the marketing strategies

Source: Own elaboration (Periyasamy & Perisayami, 2023).

The integration of AR has a substantial influence on consumer decision-making strategies (Figure 1). Through the visualisation of AR in the interactive platform, AR enhances consumer confidence in their purchasing decision (Barta et al., 2023a). When consumers see how they look in the apparel, they will be delighted. Also, a higher return rate is a persistent challenge for retailers in the fashion sector. AR technology addresses the issues associated with mismatch and fitting. It permits the consumer to make a decision based on visualisation (Fani et al., 2023).

AR can reduce the return rate by up to 30%, resulting in higher profitability and consumer satisfaction (Kumar et al., 2024). Also, it provides data insights into consumer choices and behaviour. Through the evaluation of AR features, the brand might gain insight into the most frequently used items and styles. This approach enables brand firms to adjust their strategy for meeting consumer demands and management optimisation (Xue et al., 2023).

Hence, AR disseminate a transformative force in the fashion sector and improves the decision-making strategies. Also, it addresses the contemporary challenges of likely return rates and sustainable beneficiaries (Joldescu-Stan, 2023). As consumer expectations evolve towards immersive and personalised experiences, AR serves as a crucial technology for the fashion sector, which seeks to attract new customers in the global market (Alayli, 2023). Therefore, the present research aims to detect how AR technology constructs consumer behaviour in the fashion industry. Additionally, it offers insights into the implications for

brand sustainability in a dynamic market. An in-depth analysis of AR enables retailers to adopt sustainable practices with ethical consideration.

The importance of this research lies in identifying AR as a crucial tool for transforming the fashion industry. It elevates the consumer engagement and decision-making. It permits virtual try-ons and addresses the complications associated with digital shopping, including style and fit. The technology elevates confidence amongst consumers and minimises return rates. It drives sales and elevates consumer satisfaction.

Furthermore, AR provides a deeper connection between brands and consumers. It promotes brand trust and loyalty. These two chief determinants are significant for the competing marketplace. Additionally, the research study emphasises the importance of AR in promoting sustainable strategies within the fashion sector. It eradicates the requirement for physical samples and minimises waste related to returns.

AR aids in implementing eco-friendly strategies that integrate with the consumer demand for achieving sustainability. The outcome of the study supports the brand in leveraging AR technologies for decision-making and inventory management optimisation. Finally, the AR implications enable fashion retailers to traverse the digital landscape effectively. It fosters a high level of consumer engagement and enhances the overall purchasing experience.

The adoption of AR in the fashion sector represents substantial challenges that hinder efforts to improve consumer engagement and decision-making strategies. The primary issue faced by the fashion sector is that technology adoption requires high investment (Dogra et al., 2023). It necessitates substantial investment in the software and hardware. It isn't very easy for small-sized brands in the fashion industry. The requirement of specialised skills for generating realistic AR content complicates the challenges. Since the fashion sector lacks technical experts for maintaining the technologies effectively. The financial barrier restricts the AR implementation, particularly for growing fashion brands that have benefited significantly from consumer engagement tools (Enyejo et al., 2024).

Additionally, consumer readiness and acceptance are key factors. Most consumers are unfamiliar with these technologies, despite their several benefits, including virtual experiences. Additionally, concerns about data privacy, usability, and security deter users from engaging with AR technologies. Trust is a predominant challenge that affects consumer acceptance of the technologies. It ultimately hinders the AR efficacy in the performance and profitability of the fashion sector. Hence, the present research contributes to exploring the value of AR in the fashion sector and its impact on consumer engagement and the sustainability of firms in the competitive global market.

Research objective

The chief aim of the present study is to achieve the following objectives:

To provide an overview of the significance of Augmented Reality (AR) in the fashion industry
To evaluate the impact of AR on the decision-making strategies of consumers in the fashion industry
To assess the consumer perceptions regarding AR and the perceived benefits
To analyse the associations of AR technologies and marketing tools for estimating consumer engagement.
To recommend the effective implementation of AR for enhanced shopping experience and increased consumer engagement.

Research Hypothesis

The hypothesis of the present study is as follows.
H1: AR technologies are prevalent in the fashion industry
$H1_0$: AR technologies are not prevalent in the fashion industry
H2: Perceived benefits of AR have positive impacts on the purchasing decision of consumers
$H2_0$: Perceived benefits of AR have negative effects on the purchasing decision of consumers
H3: There is a significant association between AR technologies and marketing tools for estimating consumer engagement.
$H3_0$: There is no significant association of AR technologies and marketing tools for estimating consumer engagement.

Paper Organization

The present paper is based on the current drift in the depiction of AR utilisation in the fashion industry. Whereas, scrutiny of contemporary research that has remarked on similar research work through varied use of analytical methods is characterised in Section 2. Additionally, Section 3 illustrates the methodology used in the present research. Further, the results of the current study are indicated in Section 4. Consequently, Section 5 represented the conceptual discussion on the perception of current research. Section 6 shows the limitations of the paper. Orderly, concluded reflection from the present paper is demonstrated in Section 7.

LITERATURE REVIEW

AR and Consumer decision-making behaviour

AR integration in the fashion sector has been a noteworthy focus of research, with studies uniformly emphasising its revolutionary capacities in customer interaction and decision-making. The existing research (Qin et al., 2021) analyses the significance of the MAR app and its impact on shopping behaviour and consumer attitudes. The study empirically examines the user experience and its effect on consumers' perceptions of ease of use, informativeness, and overall satisfaction.

The outcome implies that informativeness and gratification are substantially associated with app utilisation. The MAR app is observed to be enjoyable and contributes to the acquisition of information, resulting in positive implications. The research study benefits both MAR app designers and consumers, thereby impacting the marketing strategy of firms. Likewise, the conventional research (Quattelbaum et al., 2022) investigates the impact of AR and VR on the decision-making process in the textile sector.

The primary objective of the research is to assess the benefits and limitations of AR and VR utilisation in the process. AR and VR act as an interactive system, delivering valuable support for purchasing intentions. The visual properties simulation, offered prices, and consumer acceptance are some of the barriers that impact the successful adoption of these technologies (Jaganathan et al., 2025).

Such challenges are not exclusive to the fashion market; comparable issues have been documented across other sectors where AR is being implemented, including the automobile and home decor industries, indicating that overcoming technological and perceptual constraints is a universal challenge for AR adoption.

The technological growth has led to the adoption of marketing strategies, and the retail business has begun to launch AR applications. It is a new process that generates interactive channels that influence consumer purchasing decisions—additionally, a firm desires to provide an unforgettable experience to the consumers. The research study examines the impact of AR on consumer loyalty and purchasing intention. The significance of AR applications has been gradually increasing, and the effect of AR on behaviour and attitudes is gaining recognition.

The conventional research (Eru et al., 2022) assesses the influence of AR using quantitative research methods. Moreover, the data were gathered from 319 respondents and evaluated using SEM (Structural Equation Model). The outcome implies that AR positively impacts consumer loyalty through the innovative dimension (Sarkis et al., 2025). When one combines these results with other research, a clear trend emerges: AR not only enhances the short-term shopping experience but also fosters long-term loyalty by creating engaging and memorable brand experiences. The impact may vary depending on the nature of the retail setting and the consumer demographic profile.

Cultural dimension

Similarly, conventional research (Hilal & Saud, 2023) examines the impact of AR on consumers' purchasing intentions in Saudi Arabia. It utilises analytical descriptive methods, and data were gathered from 812 consumers. Positive correlations were observed among AR

factors, likely embodiment, background, and hermeneutic, as well as the dimensions of creativity, fun, and quality, in relation to purchasing intention. Young women aged 17 to 26 years utilise AR for purchasing accessories and clothes.

The outcome indicates that AR has a substantial impact on the buying decision and recommends the potential usage in strategic marketing. Additionally, it suggests that social status, gender, monthly income, and education have a significant impact on consumer perception of AR. Married women have favourable views, and clothing and accessories are frequently purchased in the retail sector. There were no substantial differences in age and family members. There is a significant impact on AR experience and purchasing decisions despite anxiety about using applications.

The research study recommends that the retail store in Saudi Arabia adopt AR technologies to meet consumer demands and trends. To elevate the AR beneficiaries among the brands, the firm should adopt effective technologies that align their designs with the cultural traits of consumers in Saudi Arabia. This serves to emphasise the need for cultural adaptation in AR adoption; evidence from Saudi Arabia indicates that AR strategies need to be adjusted for the social and cultural environment in which the target market is located to maximise effectiveness, a lesson with implications for global AR implementation initiatives.

AR is enhancing consumer experiences and influencing their shopping decisions. The cognitive load theory and the SRO (Stimulus-Organism Response) model were incorporated to examine the impact of AR on mental load. The research study (Barta et al., 2023b) evaluates the effects of option similarity, cognitive dissonance, and overchoice confusion on willingness to pay and purchasing intention. Since the study is based on the AR experiences in the cosmetics store for product assortment. A mixed-methods approach is employed, providing accurate outcomes.

The results show that AR minimises cognitive dissonance, with mediating effects of confusion and similarity due to overchoice. Additionally, minimising cognitive load promotes purchase intention, leading to a greater willingness to pay. AR applications in e-commerce platforms have benefited from acquiring a wide assortment of the same products. It supports online retailers in improving their firm performance through increased sales volume. The decrease in cognitive load not only simplifies decision-making but also leads to increased customer satisfaction and loyalty, thereby affirming the value of AR as a tool for customer engagement and retention.

Implications of AR

Consumer behaviour and its prevalence significantly impact business performance. The prevailing research (Hsu et al., 2024) assesses the impact of AR on impulsive purchasing

decisions. The research study focuses on vividness, authenticity, and interactivity. These factors, combined with emotional and psychological responses, create a more enjoyable shopping experience.

Data analysis was carried out using the PLS method, involving 254 respondents in the survey. The results show that AR characteristics encourage consumer behaviour and foster purchasing intention. Furthermore, instant gratification is promoted through interactivity and product presence. Gratification is achieved through vividness and the stimulation of the most prominent products, which is enabled by authenticity. The findings offer valuable insights for AR developers to refine the AR, aligning user experiences and increasing consumers' buying intentions (Nadeem et al., 2025).

This prevailing research directly relates to the Objectives by discussing how AR shapes consumer choice-making and perceptions within fashion retailing. The review of the literature thereby lays the groundwork for the following empirical analysis, ensuring alignment with the core research objective.

Research gap

1) The existing research (Qin et al., 2021) examines respondents enrolled in the same university and lacks generalizability in its outcomes.
2) Future studies require analysing the different age groups, personality traits, and cultural aspects to identify the benefits of AR in industrial sectors (Eru et al., 2022).
3) The prevailing research utilises the snowball sampling technique for sample selection, which may not yield the most accurate data.

Hence, the present research adopts a quantitative research method for analysing the characteristics of AR tools in assessing consumer engagement.

METHODOLOGY

Research Design

The research design is supposed to implement several processes, including tools and procedures, to obtain data for the research purpose. Well-designed research is mandatory to acquire reliable and valid outcomes. The study employs the appropriate methodological approach, addressing the research questions (Baur, 2019).

The research methodology and design have been formulated to systematically address each of the research objectives presented in the introduction. All phases of data collection and analysis are aligned with these objectives, ensuring the study maintains its focus on the key objective. The current study employs a quantitative research method. For the quantitative

method, data are collected using a questionnaire that is based on study variables and queries to facilitate the analysis (Mohajan, 2020).

Study Area

The study is conducted among consumers in the fashion industry in India, who are wholeheartedly involved in the survey and interviews. It supports the proper execution of the present study. The survey and interview are conducted with the aid of respondents. The people who contributed to the study are consumers of the fashion sector. This will enhance the significance of the research and make data collection more convenient and faster.

Sample Size and Population

For any study, the sample size is supposed to be finalised after appropriate analysis to acquire precise as well as generalised outcomes. In the present research, the most suitable respondent contribution will be selected to collect data on the perceptions of consumers in India. The data gathered using the quantitative technique depends on the chosen sample size, which helps to prove the study objectives (Lakens, 2022). The study incorporated 200 respondents for the quantitative research, which included consumers in the respective field involved in the current study.

Sampling Techniques

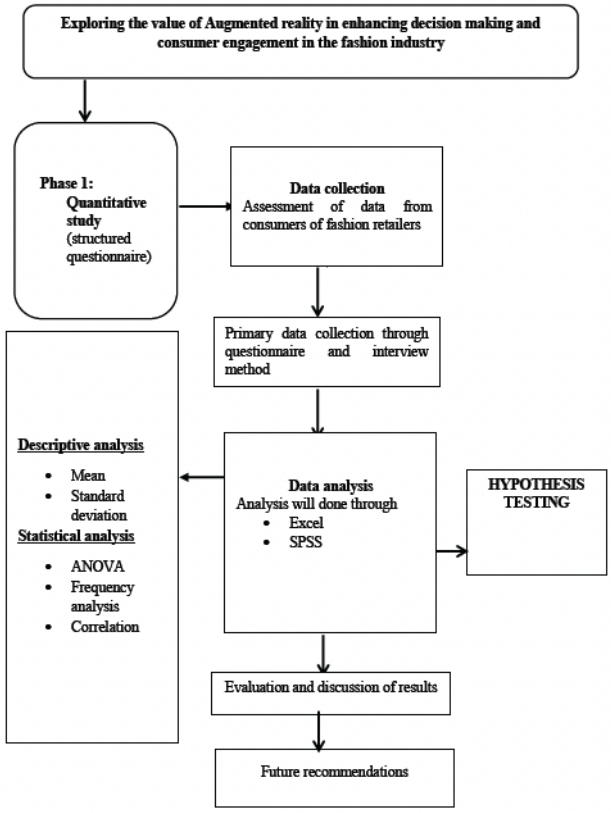
The technique used for sampling is a crucial step in collecting data from the targeted population, rather than concentrating on the entire available population (Stratton, 2021). The current study uses a purposive sampling method to select the target respondents. Correspondingly, the data to be gathered for the current research will be collected from samples that are willing and able to offer precise responses, which will be measured. Applicable sampling techniques will help derive samples to reinforce the objective of the present research. Additionally, it is used to analyse the dataset and categorise patterns, allowing one to comprehend the significance of AR technologies in the fashion sector (Sreekumar, 2023).

Data Analysis

Quantitative methodology involves collecting, analysing, and interpreting quantitative data in research. The study levels are synergistic with the quantitative phase. This method yields results that include the incidence under study, thanks to the quantitative data. The present study employed a quantitative research approach, as it is more appropriate for depicting and enlightening different aspects (McLeod, 2019). The quantitative data collected through a structured questionnaire are analysed using the SPSS software tool. The gathered data are exported into an MS Excel sheet for a transparent study of variables.

The quantitative research approach gathers data from respondents using closed-ended queries and infers the responses (Kandel, 2020). This is a naturalistic and multi-method approach, which is an interpretive technique to its research matter (Maxwell, 2021). An in-depth interview procedure technique is implemented to question consumers in the fashion sector. This technique describes the respondent's opinion, experience, emotions, and meaning descriptively.

Figure 2
Research Design



Source: Own elaboration.

Figure 2 above demonstrates the process incorporated in the present study for quantitative data analysis using SPSS software, where study variables are identified and executed.

RESULTS

Demographic analysis

Two hundred consumers are considered participants of the present research. The demographic particulars of the contributors are illustrated in Table 1.

Table 1
Demographic data

Demographic factor	Parameter	No. of respondents	Frequency (%)
Age	18 to 25 years	16	8
	26 to 35 years	133	66
	36 to 60 years	51	26
Gender	Male	134	67
	Female	66	33
Marital status	Single	183	91
	Married	17	9
Qualification	Under graduate	133	67
	Post graduate	51	25
	PhD/Doctorate	16	8
Occupation	Student	45	23
	Private	110	55
	Public	25	12
	Self	20	10

Source: Own elaboration.

Table 1 presents the demographic data of Gen Z individuals who have joined the review. The age of the respondents is analysed, and it is concluded that the majority of the defendants (66%) belong to the 26 to 35-year group. In the case of gender, male respondents (67%) contributed more to the research purposes. Based on educational qualifications, the majority of the respondents have completed undergraduate studies (67%). According to the survey, most respondents (55%) are employed in the private sector, followed by students and those in the public sector. Most of the respondents have worked for 0-5 years in the firms. The outcome of the demographic data indicates that the current study has collected data from undergraduate students aged 26 to 35 years, with 0-5 years of experience, which has contributed substantially to the research purposes.

Statistical analysis

Hypothesis 1

Frequency analysis

It is an arithmetic method used to analyse data. It evaluates the occurrence of different values in the sample. It supports ensuring the accuracy and consistency of the dataset. The frequency is depicted as F, and the cumulative percentage is addressed as C%. V represents Valid.

Table 2
AR application for shopping

		F	%	V%	C%
Valid	yes	162	81.0	81.0	81.0
	no	38	19.0	19.0	100.0
	Total	200	100.0	100.0	

Source: Own elaboration.

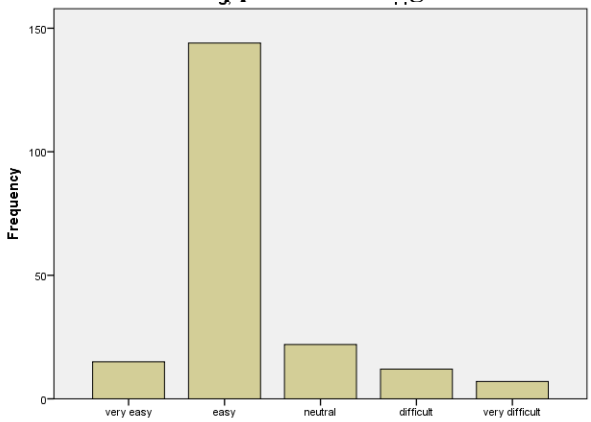
Table 2 exemplifies the frequency analysis of AR applications prevalent in the fashion industry. Almost 81% of consumers utilised AR applications, and 19% of them do not utilise AR applications

Table 3
Scaling easy-to-use AR applications

		F	%	V%	C%
V	very easy	15	7.5	7.5	7.5
	easy	144	72.0	72.0	79.5
	neutral	22	11.0	11.0	90.5
	difficult	12	6.0	6.0	96.5
	very difficult	7	3.5	3.5	100.0
	Total	200	100.0	100.0	

Source: Own elaboration.

Graph 1
AR applications usage



Source: Own elaboration.

Table 3 and Graph 1 exemplify the frequency analysis of scaling the usage of AR applications. Almost 72% of consumers in the fashion sector found it easy to utilise AR applications. 7.5% of them found the application very easy to use. On the contrary, 6% of them found it difficult, and 3.5% of them found it very difficult to use the AR application to evaluate the fit and style of the products in the fashion sector. The findings address Objective 1, which is the prevalence of AR technologies in the fashion industry.

Hence, H1: AR technologies are prevalent in the fashion industry has been proved from the above analysis.

Hypothesis 2

One-way ANOVA

It is used to determine the impact of social media and research objectives on dependent variables, as well as to investigate variations. The current study employed one-way ANOVA to assess the impact of online learning platforms on employee training.

Table 4
Descriptives

		N	M	SD	SE	95% CI for M		Min	Max
						LB	UB		
How does AR impacts the emotional connections to a brand?	yes	162	1.78	.417	.033	1.71	1.84	1	2
	no	38	3.63	.633	.103	3.42	3.84	3	5
	Total	200	2.13	.864	.061	2.01	2.25	1	5
What is the overall satisfaction level with the current use of AR in the fashion industry?	yes	162	1.58	.495	.039	1.50	1.66	1	2
	no	38	3.29	1.063	.172	2.94	3.64	2	5
	Total	200	1.91	.928	.066	1.78	2.03	1	5

Source: Own elaboration.

Table 5
ANOVA

		SOS	df	M^2	F	S.
How does AR impacts the emotional connections to a brand?	Between-Groups	105.778	1	105.778	488.865	.000
	Within-Groups	42.842	198	.216		
	T	148.620	199			
What is the overall satisfaction level with the current use of AR in the fashion industry?	Between-Groups	89.922	1	89.922	219.073	.000
	Within-Groups	81.273	198	.410		
	T	171.195	199			

Source: Own elaboration.

Table 5 above illustrates the ANOVA test results, which involved AR technologies and the purchasing decisions of consumers in the fashion industry. The descriptive statistics indicate that most consumers report an increase in their emotional and satisfaction levels with the adoption of AR technologies (Table 4). In the ANOVA test, the AR technologies acquire a p-value of 0.000 regarding consumer purchasing decisions in the fashion sector. All the p-values are less than 0.05, which indicates that AR technologies and consumer purchasing decisions in the fashion sector are statistically significant (Table 5). Thus, AR technologies have a significant impact on buying decisions. Therefore, the null hypothesis is invalid. The findings address objectives 2 and 3, evaluating the impacts of AR technologies on purchasing decisions and their perceived benefits for consumers in the fashion industry.

Hence, H2: Perceived benefits of AR have positive impacts on the purchasing decision of consumers has been proved from the above analysis.

Hypothesis 3

Correlation

Table 6 presents the consequences of a correlation test conducted to examine the association between AR technologies and consumer engagement. The p-value is .000, which is well

below the conventional significance level of 0.05. This specifies that the correlation observed between AR technologies and consumer engagement is statistically significant (Table 6). The very low p-value confirms that the relationship is unlikely to be due to random chance.

Table 6
Correlations

Control Variables			How engaging do you find AR experiences in the marketing campaign?	How likely are you to share the AR experience on social media?
Does AR enhances brand loyalty?	How engaging do you find AR experiences in the marketing campaign?	Cr	1.000	.608
		S	.	.000
		df	0	197
	How likely are you to share the AR experience on social media?	Cr	.608	1.000
		S	.000	.
		df	197	0

Source: Own elaboration.

A correlation value of 1 indicates a perfect positive correlation between AR technologies and engagement, as well as their purchasing intention. This means that as one variable increases, the other variable increases proportionally. In this context, it suggests that the presence of AR technologies is strongly associated with a higher likelihood of consumer engagement. The outcomes of the correlation test reveal a statistically significant and perfect positive correlation between the AR technologies and consumer engagement. This indicates a strong relationship between these variables. The findings address objective 4, evaluating the association of AR technologies and marketing tools for consumer engagement in the fashion industry.

DISCUSSIONS

The outcome of the present research proves that the AR strategies are more prevalent in the fashion industry. The present study suggests a notable correlation between the perceived benefits of AR and consumer purchasing decisions. Additionally, the substantial association of AR technologies and marketing tools for estimating consumer engagement has been illustrated. Overall, the study's findings achieve the research objectives.

The existing research (Jiang et al., 2023) reports the efficacy of AR in the tourism industry and evaluates the consumer experiences through quantitative interviews. Meta-analyses have been conducted among 118 respondents. The outcome implies that the AR have a noteworthy impact on the efficacy of tourism and elevates the travelling experience. Likewise, the present research conducted frequency analysis and 72% of consumers in the fashion sector found it

easy to utilise AR applications. It indicates that consumers are aware of using AR for purchasing products.

Contemporary research (Erdmann et al., 2023) evaluates consumers' purchasing intentions to adopt AR. Data were gathered from 253 participants, and a cost-benefit process was conducted. The outcome suggests that experiential AR has a positive impact on consumers' purchasing intentions on online platforms. Similarly, the present study examines the impact of perceived benefits on purchasing intention. In the ANOVA test, the p-values are less than 0.05, indicating a substantial correlation between the perceived benefits and purchasing intention.

The prevailing research (Dağ et al., 2024) examines the impact of AR on user satisfaction, authenticity, and engagement in the tourism sector. Data has been analysed through PLS. The outcome reveals that authenticity, engagement and experiences attain a P value less than 0.001, proving these factors have a positive impact due to AR utilisation. Similarly, the present research employs a correlation test, and the results reveal a significant and perfect positive correlation with a p-value of 0.000 between AR technologies and marketing tools for estimating consumer engagement.

The chief constraint of the study is the limited sample population. Henceforth, the outcomes lack generalizability due to the small sample size. Henceforth, the outcomes may not be comprehensively pertinent and must be contextualised within the fashion industry. Moreover, the primary data has been used to derive the result. Human actions are an ever-fluctuating module that cannot remain constant. Consequently, the study's findings always vary depending on the consideration of differences in consumer perception within the fashion sector. However, the endorsement provided by the research can be valuable in raising awareness of the significance of AR technologies for achieving successful outcomes.

CONCLUSIONS

The integration of AR in the fashion sector holds transformative potential for enhancing consumer engagement. Since it permits the virtual try-on and interactive fashion, AR addresses the challenges of digital shopping. It eliminates the uncertainty regarding style and fit. It fosters emotional connection between brands and consumers. The study succeeded in achieving the objective through (1) measuring the role of AR in fashion; (2) comparing its influence on decision-making; (3) exploring consumer attitudes; (4) comparing the marketing and engagement role of AR; and (5) providing effective implementation strategies.

The practical implication of the study recommends that retailers adopt AR technologies to generate personalised experiences that align with modern consumers. Brands implementing AR might expect decreased return rates, higher consumer satisfaction, increased brand trust, and higher sales. It drives sustainability efforts in the fashion sector through the minimisation of wastage related to physical samples. In the digital era, consumers are increasingly aware of the environmental impact, and brands must adopt AR strategies to gain a competitive edge in the global market. Concluding, embracing AR is not a digital trend; brands must thrive in the digital landscape and meet the desire of environmentally conscious consumers. Artificial intelligence plays a vital role in the modern era. Hence, future research may explore the integration of AI and AR to enhance the purchasing experiences of consumers.

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Experiential Retail in the Smartphone Industry: Consumer Behaviour and Brand Loyalty

Experiencia de compra en la industria del Smartphone: comportamiento del consumidor y lealtad de marca

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ABSTRACT

The goal of this study is to examine the impact of experiential retail on purchasing decisions and brand loyalty in the smartphone industry. The present research executes a quantitative analysis utilising the SPSS version 23 software package. A structured questionnaire survey technique is employed to gather the data from the experiential retailers in the smartphone industry. A purposive sampling strategy has been adopted for analysis. The objective behind this technique is to gather data on the perception of experiential retailers regarding the impact of purchasing decisions and brand loyalty in the smartphone industry. Descriptive statistics, ANOVA, regression and Pearson correlation analysis are performed in research. The study's outcomes indicate that experiential retail shopping has a significant impact on the growth and sustainability of consumers in the smartphone industry. Furthermore, the study also evaluates the considerable effects of consumers' behaviours in the smartphone industry through purchasing decisions and brand loyalty. The study recommends that experiential retailers enhance their innovative strategies to strengthen their business in the smartphone industry.

Keywords: Experiential Retail; Purchase Decisions; Brand Loyalty; Smartphone Industry; customer engagement

JEL Code: M, M3, M37

RESUMEN

El objetivo del estudio es representar las influencias de la experiencia en la decisión de compra y la lealtad a la marca en la industria del *smartphone*. La presente investigación ejecuta un análisis cuantitativo utilizando el paquete de software SPSS versión 23. Se utiliza una técnica de encuesta de cuestionario estructurado para recopilar datos de los minoristas en la industria del *smartphone*. Se ha adoptado una estrategia de muestreo intencional para el análisis. El objetivo detrás de la técnica es recopilar datos relacionados con la percepción de los minoristas sobre el impacto de la decisión de compra y la lealtad a la marca en la industria del *smartphone*. En la investigación se realizan estadísticas descriptivas, ANOVA, regresión y análisis de correlación de Pearson. Los resultados del estudio examinaron que las compras experienciales al por menor tienen un impacto significativo en el crecimiento y la sostenibilidad de los consumidores en la industria del *smartphone*. Además, el estudio también evalúa el impacto significativo del comportamiento del consumidor en la industria del *smartphone* a través de las decisiones de compra y la lealtad a la marca. El estudio recomienda a los minoristas mejorar sus estrategias innovadoras para fortalecer su negocio en la industria del smartphone.

Palabras clave: Comercio minorista experiencial; Decisiones de Compra; Lealtad a la marca; Industria del smartphone; compromiso del cliente;

INTRODUCTION

In today's busy digital world, many retailers are striving to gain a competitive edge in the retail market by providing an unforgettable shopping experience to consumers. In an experiential retail shopping environment, consumers are more interested in participating in the shopping experience than in the traditional retail shopping experience.

This encourages retailers to implement experiential retail for their consumers. It is also noted that retailers are making efforts to provide unforgettable experiences for customers to highlight their products and services. The retail sector offers extraordinary services of customised products to consumers, creating high value in customer engagement. Customer engagement plays an effective role in experiential retail (An & Han, 2020)

The essential components, such as purchase decision and brand loyalty, play a massive role in experiential retail. Especially in the smartphone industry, brand loyalty and purchase decisions act as effective marketing strategies in the competitive world. Purchasing decision is a critical factor that shopkeepers must understand properly.

The process of purchasing decisions depends on the consumer's intention to acquire products and services in the market (Van Thuy et al., 2022). It assists the shopkeeper/marketer in the process of selling their goods and services. If shopkeepers effectively understand the shopping behaviour of consumers, their purchasing decisions can be made more effectively.

Five practical components influence consumer purchasing decisions. They are purchase choice, post-purchase behaviour, evolution of alternatives, information search, and problem identification. These are the five key components that influence consumers' purchasing decisions. However, it depends on the nature of the individual's needs. Moreover, these five practical components are especially effective for new purchasers. Understanding the purchasing behaviour of consumers helps the sector to sustain itself strongly in the competitive market (Riaz et al., 2021).

Building brand loyalty is a crucial component in this competitive world. Creating brand loyalty is an essential element in today's generation. Sustainability and profitability can be successfully achieved through implementing brand loyalty in experiential retail. Implementing brand loyalty in experiential retail helps create a positive relationship with customers and effectively enhances customer engagement. In today's generation, consumers are more conscious towards the brand (Jamshidi & Rousta, 2021).

This means consumers are aware of their social needs in relation to the brand, and this makes them more likely to purchase repeatedly from that particular brand. Innovative technologies also play a crucial role in fostering brand loyalty. Marketing strategies play an essential role in promoting the brand to consumers (Bing et al., 2024).

Consumer engagement and brand loyalty can be easily achieved through understanding consumer behaviour. Building brand loyalty and purchasing decisions help the smartphone industry experience sustainable economic growth in this digital world. The craving for smartphones is increasing effectively among all generations (Hill & Yoeung, 2024).

Due to the vast arrival of smartphones in the marketplace, it has become a hectic situation for marketers/sellers and consumers. Therefore, building strong brand loyalty and influencing purchasing decisions in experiential retail effectively contributes to economic growth and achieves high success in this sector (Solihin et al., 2021).

Traditional marketing has failed to satisfy everyone involved, making it necessary to implement new methods, such as experiential marketing. Companies can provide customers with a captivating experience that sets them apart from their rivals, improves brand awareness, and fosters customer loyalty (Hidayatullah et al., 2025).

Enhancing the interactive relationship between the brand and customers through various channels is what customer engagement is all about, resulting in increased brand awareness and loyalty among both potential and current customers. Engaging with customers and fostering loyalty towards the brand leads to sustained business success by enhancing the relationship between the brand and customers, ultimately increasing customer retention and satisfaction with the products.

Experiential marketing is about designing special environments where customers can interact with a brand and enable conversations in both directions. The Strategic Experiential Modules (SEMs) comprise five distinct types of experiences: 'sense', 'feel', 'think', 'act', and 'relate'. Research indicates that experiential marketing plays a crucial role in fostering customer engagement. Despite this, there has been a lack of in-depth study on the analysis of SEMs, specifically regarding how experiential marketing SEMs affect customer engagement (Lu et al., 2023).

Due to the rapid advancement of digitalisation, implementing an innovative framework has become an essential part of experiential retail to sustain growth in this environment. The factors that differentiate experiential retail from traditional retail are that experiential retail focuses on creating an unforgettable shopping experience, encourages new approaches,

adopts omnichannel strategies, prioritises customer engagement over sales, and helps build communities in the retail sector (He et al., 2025).

Creating an unforgettable experience in a shopping environment plays a significant role in experiential retail. In this digital world, consumers are seeking an experience that allows them to share on social media platforms. Actively engaging with social media helps the retail sector better understand and cater to consumers, especially younger generations (Gunawan, 2022).

An experiential retail sector focuses on exposing the brand value to customers more than the sales aspects. Building communities in experiential retail is a key component to strengthening the industry. There are various ways to create a community in the retail sector, such as offering discounts and hosting events.

The term "retailtainment" is derived from the new approach of combining experiential retail and entertainment. Retailtainment consists of a combination of entertainment and experiential retail (Grewal & Roggeveen, 2020). It creates a unique experience for consumers by offering a range of methods and techniques. Additionally, retailtainment focuses on capturing the attention of consumers through the use of celebrities, industry experts, and other engaging methods. The significant role of Omnichannel retail experiences includes a wide range of products and services for consumers, such as in-store fulfilment.

This activity helps to sustain the consumers in their retail business. Maintaining consumer engagement is always essential in the retail sector. Physically interacting with the product helps create a desire for it. It also enhances the purchasing decision and helps create a bond between people and the product (Watson et al., 2018).

Nowadays, the necessity to shop in-store is becoming less. The shopping environment is driven by the unforgettable experience and excitement of discovering something new. In-store expertise, primarily, stimulates the customer's sense of connection to create a strong bond between the brand, product, and services for consumers (Quan et al., 2020).

The significance of the study lies in its exploration of key components that can help sustain consumers in the competitive smartphone industry. As brands strive to differentiate themselves, this research emphasises the critical role of experiential retail in shaping consumer perceptions and behaviours. By analysing how immersive shopping experiences influence brand loyalty and purchasing decisions, the study highlights the importance of developing innovative techniques that enhance customer engagement and satisfaction, ultimately fostering stronger emotional connections with brands.

Furthermore, the study examines both internal and external factors influencing consumer behaviour, offering a comprehensive understanding of the decision-making process. It investigates established consumer behaviour models such as the Engel-Kollat-Blackwell (EKB) Model and Howard Sheth Model (HSM), offering a theoretical framework for analysing consumer interactions within experiential retail environments. Key elements such as accessibility, delivery, quality, website aesthetics, trust, and pricing are shown to significantly impact purchase decisions, highlighting the multifaceted nature of consumer choice.

Additionally, this research addresses the evolving landscape of digital and physical retail spaces, exploring how technology integration—such as augmented reality and personalised marketing—can further enhance the experiential aspect of shopping. By identifying best practices for leveraging these elements, the study aims to equip retailers with actionable insights that foster lasting consumer relationships and drive sustainable growth in a rapidly evolving market.

The problem statement is that in today's digital landscape, thousands of brands are vying for consumer attention while also striving to maintain customer loyalty. The abundance of information and easy access to product data have empowered consumers, making them more discerning and knowledgeable about their choices. Consequently, sustaining customer engagement in such a competitive environment poses significant challenges for the retail sector.

Without implementing effective strategies, marketers face substantial obstacles in creating sustainable practices within experiential retail. Digitalisation has introduced complexities that further hinder the retail industry's ability to adapt; many retailers are slow to embrace new technological frameworks, which are essential for enhancing customer relationships and improving sustainability.

The lack of innovation in adapting to digital advancements not only affects consumer purchasing decisions but also undermines the potential for building long-term customer loyalty. To thrive in this evolving marketplace, retailers must prioritise the integration of innovative technologies and sustainable practices that resonate with today's eco-conscious consumers, ensuring they meet both market demands and expectations effectively.

The following are the objectives of the study:
To analyse the impact on brand loyalty among consumers in the smartphone Industry.
To examine the factors influencing experiential retail on purchase decisions.
To determine consumer attitudes and perspectives towards purchasing smartphone brands in the Delhi NCR region

The research questions are:
What is the significant impact of brand loyalty among consumers in the smartphone Industry?
What are the factors influencing experiential retail on purchase decisions?
What are the reasons that determine consumer attitudes and perspectives towards purchasing smartphone brands in the Delhi NCR region?

The paper is then organised in the following sequential manner. Section 1 illustrates a brief introduction regarding the concepts of purchase decision and brand loyalty in the smartphone industry. It also depicts the significance of research. Section 2 describes the prevailing scholarly research works related to the present study. Section 3 presents the research methodology, and the analysis results are presented in Section 4. Section 5 illustrates the discussion and the limitations of the study. Lastly, Section 6 discusses the conclusion and future recommendations of the study.

LITERATURE REVIEW

The existing study (Ouzir et al., 2024) aims to investigate how utilising neuromarketing methods, such as analysing EEG (Electroencephalogram) signals, can classify consumer preferences and influence decision-making processes. Researchers conducted a research study in which subjects were presented with various advertising stimuli while their EEG signals were recorded. Sophisticated signal processing methods were utilised in the research to investigate changes in brain activity associated with different consumer preferences. Machine learning algorithms were used to classify the EEG data and identify patterns related to specific consumer choices. The findings indicate that particular EEG signal patterns are linked to consumer preferences and decision-making behaviours.

The existing paper (Puspanathan et al., 2021) analyses the role of Integrated Marketing Communication (IMC) on the consumer decisión-making process. The paper aims to utilise the IMC tool to attract the targeted audience through advertising, promotions, interactive marketing, personal selling, and public relations, which influence the consumer decision-making process.

The above factors are the critical components that can affect the decisión-making process of the consumer effectively. The paper conducted the research using a quantitative method, and the questionnaire was collected through random sampling. The questionnaire was distributed online and contained 5 Likert scales. The data were collected from 382 respondents in Ipoh and analysed using the Statistical Package for the Social Sciences. The study concludes that all elements significantly influence the consumer's decision-making process.

Due to the rapid evolution of online shopping, the existing study (Pei et al., 2020) examines the significance of shopping experience in this competitive world. Traditional stores are striving to implement innovative frameworks in their physical stores. Through various shopping experiences, especially customer experience and customer satisfaction, are essential sources of maintaining sustainability in the retail sector. Through enhancing the customer experience, the retail industry can support sustainability in the digital world.

The existing study (Pei et al., 2020) describes the factors that influence customer satisfaction and customer experience. The study collected a dataset sample from two different shopping circumstances. The data set sample contains a total of 288 questionnaires, with 146 questionnaires gathered from physical stores in China and 142 online questionnaires collected in 21 cities of China. Moreover, the paper conducts the hypothesis test using multiple regression analysis.

The results were obtained with a positive impact on customer satisfaction through the factors of shopping environment, staff service, and shopping procedure. The existing study examines practical suggestions for the sustainability of the retail sector, considering the influence of customer experience management.

The existing paper (Attor et al., 2022) examines the use of innovative marketing strategies to promote the brand personality concept, particularly for product promotion. The paper identifies the integration between customer purchase decisions and brand personality. It primarily denotes the impact of brand personality on customer buying decisions in the telecoms industry.

The research was conducted using a positive paradigm, utilising 414 data points from telecom customers in Ghana. The results were obtained from the PLS-SEM process. The result identifies five main characteristics of brand personality. They are competence, sincerity, sophistication, ruggedness and excitement. These are the significant factors which influence the customer's buying decision. Additionally, the results indicate that brand competence, brand excitement, and brand loyalty play a crucial role in customer buying decisions. Notably, the brand's ruggedness and sophistication do not positively impact the customer's buying decisions.

In the retail sector, smartphone plays a significant role in the digital world. Primarily, customer experience is a key component to sustaining competitiveness in this competitive world. The existing study (Molinillo et al., 2022) examines the customer experience with the retail app in terms of four main attributes: affective, relational, cognitive, and sensorial. The four primary attributes mentioned above are observed in customer loyalty. The PLS-SEM

technique is utilised to analyse the data sample of 545 retailers' app users. The paper concludes by describing the factors that influence and detailing the importance of sensory experience.

Customer behaviour model helps to stand out as unique in the retail sector. Additionally, it effectively engages, retains, and attracts. There are two models: one is traditional consumer behaviour, and the other is the contemporary model.

The conventional consumer model uses the Learning Model, Psychoanalytical Model, Sociological Model, and Economic Model. At the same time, the modern model of consumer behaviour is mainly focused on the consumer decision-making process. The contemporary models include the Engel-Kollat-Blackwell (EKB) Model, Black Box Model, Howard Sheth Model, Hawkins and Stern Model, Nicosia Model, and Webster and Wind Model (Tešić & Bogetić, 2022).

The existing study (Zhang et al., 2020) implements the Engel-Kollat-Blackwell (EKB) model. This model is used to investigate the potential of consumer behaviour effectively. The Engel-Kollat-Blackwell (EKB) model is a well-known practice in consumer behaviour. The study was conducted using a questionnaire model, and data were collected from the WeChat APP system. The result identifies that employing the EKB model enhances the consumer decision-making process with five main attributes: information collection, demand perception, purchase decision, program evaluation, and buying.

The existing study (Reddipalli, 2020) helps retailers to understand the entire decision-making process of customers. The study utilises the smartphone to conduct the research for a better understanding. Implementing the Howard Sheth Model (HSM) of consumer behaviour in buying a Smartphone helps retailers sustain effectively. The results were obtained through a review of the dataset, sourced from the internet, and feedback. The paper concludes that implementing HSM in consumer behaviour regarding smartphone purchases effectively benefits both retailers and consumers.

The existing study (Khanna & Singh, 2023) analyses the impact of price, brand, and product features on consumers' smartphone purchasing decisions. The researchers employed a descriptive and causal-comparative research design, analysing individuals in the Kathmandu Valley with prior smartphone usage. A convenience sampling approach was utilised to select 344 individuals. Consumer choices when purchasing smartphones are positively influenced by factors such as price, brand, and product features, according to the findings. Notably, both brand and product features significantly impacted these decisions, while price had no significant effect.

The study finds that product attributes play a crucial role in influencing consumer purchasing decisions, while maintaining a strong brand image is essential for creating value in the smartphone market. Thus, companies need to focus on enhancing product features and maintaining their brand image to address consumer demands effectively.

The existing paper (Hisyam et al., 2022) analyses the importance of internal influence on consumer behaviour. The paper mainly focuses on the concept of online shopping. The study analyses wooden products explicitly due to the limited research available on these products in Malaysia. Four important internal influences were analysed: time management, lifestyle, ease of use, and experience.

These are the four crucial internal influencing factors in online shopping of wooden accessories. The survey was conducted in June and July 2021. The questionnaire model is utilised and distributed via social media platforms, including Facebook, WhatsApp, and Instagram.

Finally, the data, which covered 464 respondents, were analysed using SPSS version 26 with a multiple regression model. The paper concludes that, with the obtained results, the value of time management is 0.132, an influencing factor towards online shopping, with a standardised coefficient (β) of 0.410, ease of use is 0.076 and experience is 0.139.

The paper scrutinises the factors that influence the purchase of smartphones, based on a dataset of 366 samples in China. The data set was particularly collected from individuals born in the 1980s and 1990s, as they were expected to be future consumers in the Chinese market (Oe & Yamaoka, 2022).

Smartphone plays a significant role not only in the communication field but also act as an essential tool in people's lives. Therefore, the existing study was based on the concept of liquid consumption. The study primarily focuses on the significance of smartphone products in terms of consumer satisfaction. The existing paper analyses three significant factors — innovation, influence, and fashion —on consumer purchasing behaviour in the smartphone market.

The prevailing study (Zha et al., 2024) examines five sensory stimuli (i.e., visual, auditory, olfactory, tactile, and gustatory) that affect sensory brand experience and brand loyalty through customer satisfaction, brand attachment, and customer lovemarks. This study also examines the role of employee empathy in moderating the impact of sensory brand experience on customer satisfaction, brand attachment, and customer love marks.

Our study employed a mixed-methods research design, primarily using a quantitative approach through 512 Chinese consumers' questionnaire responses, supplemented with 10 in-depth interviews and four focus group discussions to derive early findings regarding the topic area. The findings indicate that five sensory cues have a significant impact on the sensory brand experience and, consequently, drive customer satisfaction, brand attachment, and customer love marks. It further proposes that not all aspects of brand attachment and customer satisfaction predict brand loyalty, and that employee empathy has an adverse moderating effect on the relationship between customer love marks and sensory brand experience.

The preceding study (Suardana et al., 2024) analysed how brand image, brand awareness, and social media marketing affect consumer purchase decisions, with mediating variables such as purchase interest, service quality, and experiential marketing, providing valuable insights for marketers to improve their understanding of consumer behaviour.

The population consisted of Somethinc's Instagram followers, with 156 samples. This research found that brand image did not have a significant effect on purchase decisions, whereas brand awareness had a significant effect on purchase decisions. The purchase of interest and service quality had little impact on purchase decisions.

Social media marketing had a limited impact on purchase decisions, but it had a significant effect on experiential marketing, highlighting its contribution to enhancing consumers' experiences. On the other hand, experiential marketing has a substantial influence on purchase decisions, successfully mitigating the impact of social media marketing.

This research also revealed that purchase interest failed to mediate the effect of brand image on purchase decisions, and service quality failed to mediate the impact of brand awareness on purchasing decisions. The results yield insightful information to create more impactful strategies in the contemporary marketing scene. For example, marketers can use this knowledge to develop strategies that focus on creating experiential engagements with consumers.

The preceding study (Reva et al., 2025) states that the accelerated development of technology has revolutionised industries and consumer tastes worldwide, especially in the smartphone industry. In Indonesia, smartphones have evolved from being luxury products to necessities, with Samsung being a prominent player.

Although extensive research has been conducted on customer satisfaction and its determinants, gaps remain in knowledge regarding the mediating role of satisfaction between product quality, price, and purchase decisions. This research investigates these relationships

among Samsung smartphone users in Indonesia using Structural Equation Modelling-Partial Least Squares (SEM-PLS) to examine data gathered from 113 respondents via convenience sampling.

Results indicate that product quality has a significant impact on customer satisfaction and directly influences purchase decisions, underscoring its critical importance. Price has a positive effect on customer satisfaction, but it has a limited direct impact on purchase decisions, with a particular emphasis on the pivotal mediating role of satisfaction. Purchase decisions are highly influenced by customer satisfaction, which catalyses the independent and dependent variables. These findings emphasise the importance of prioritising product quality and strategies that enhance customer satisfaction to succeed in the smartphone market.

Companies are advised to focus on innovation and pricing strategies that align with perceived customer value to enhance satisfaction and purchase intention. Although price has an indirect impact on satisfaction, the direct and mediated influences of product quality prevail. These results inform firms like Samsung to fine-tune their strategies to respond to changing consumer demands, enhance loyalty, and establish market dominance. Subsequent research will need to examine wider geographical settings and more mediators, including trust and brand loyalty, to develop a more complete picture of consumer behaviour.

The existing study (Azzari & Pelissari, 2021) aims to identify the critical role of brand awareness in consumer behaviour. The paper focuses on the consumer-based brand equity model (CBBE). The study is based on the quantitative model and a survey conducted with 622 smartphone users. The paper conducted a hypothesis test using structural equation modelling (PLS-SEM) with an ordinary least squares regression model (OLS). The models of PLS-SEM and OLS are utilised to analyse the mediation effect.

The paper (Azzari & Pelissari, 2021) conclude that brand awareness does not directly impact purchase behaviour. This effect is measured, particularly when the three attributes of CBBE mediate it. They are brand loyalty, brand associations and perceived quality. The existing paper concludes that brand awareness enhances brand value for consumers.

Table 1
Theoretical Framework

No	References	Objective	Methodology	Outcome	Limitations
1	Ouzir et al. (2024)	To classify consumer preferences based on EEG signal analysis.	EEG signal analysis of brain regions to assess decision-making processes.	Identified patterns in EEG signals that correlate with consumer preferences.	Limited sample size may affect generalizability of results.
4	Attor et al. (2022)	To examine the influence of brand personality on consumer buying decisions in Ghana.	Survey-based research analyzing consumer responses to brand personality traits.	Established a significant relationship between brand personality dimensions and purchasing behavior.	Cultural context may limit the applicability of findings to other regions or demographics.
5	Molinillo et al. (2022)	To analyze the implications of customer retail app experience on loyalty.	Mixed-methods approach combining surveys and app usage analytics.	Found that positive app experiences enhance customer loyalty significantly.	Results may vary with different app functionalities not covered in the study.
7	Zhang et al. (2020)	To extend the Engel-Kollat-Blackwell model for residential customers' consumption behavior analysis.	Model extension based on empirical data collection from residential consumers regarding their behaviors.	Enhanced understanding of consumption behavior dynamics among residential customers using an extended model.	Model may not account for all variables influencing consumer behavior in different contexts.
8	Reddipalli (2020)	To apply Howard-Sheth model to understand smartphone purchasing behavior.	Case study approach analyzing consumer decision-making processes specific to smartphones.	Offered insights into factors influencing smartphone purchasing decisions based on established models.	Limited by focus on a single product category; broader implications may be constrained.
9	Khanna & Singh (2023)	To study factors affecting smartphone purchase decisions among consumers.	Survey-based research collecting data from smartphone users regarding their purchase influences.	Identified key factors impacting purchase decisions such as brand reputation and features.	Sample size may restrict the generalizability of findings across different demographics.
11	Oe & Yamaoka (2022)	To explore consumer expectations from smartphones and factors influencing purchasing decisions.	Mixed-methods approach combining surveys and focus groups to gather insights from consumers.	Highlighted key expectations and decision-making factors related to smartphone purchases.	Limited by cultural context which may affect generalizability across diverse markets.
12	Azzari & Pelissari (2021)	To investigate the influence of brand awareness on purchase intention mediated by brand equity dimensions.	Survey-based research examining relationships between brand awareness, equity, and purchase intention.	Established a positive correlation between brand awareness and purchase intention through brand equity mediation.	Focused primarily on one market segment; findings may not apply universally across all demographics.

Source: Own elaboration.

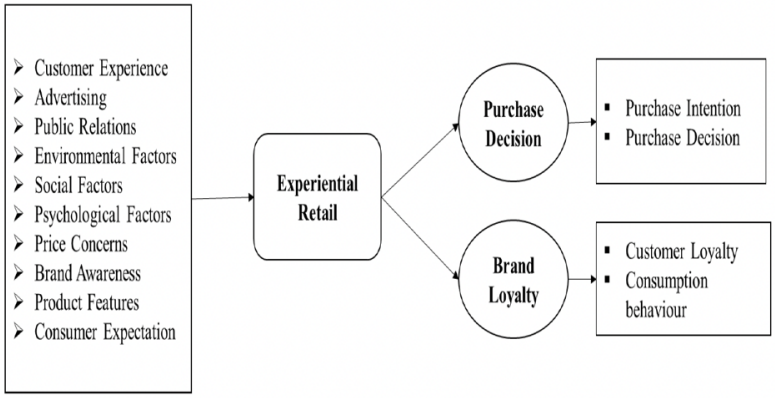
RESEARCH METHODOLOGY

Research Design

The method followed by the researcher for collecting and analysing data to accomplish the research question or objective is regarded as a research design. In simple words, research design provides the strategy followed by the researcher to address the research questions and analyse the study variables (Baur, 2019). The current study will follow the quantitative approach to gather data regarding the study variable and research question. A survey-based method, utilising a quantitative approach, will be employed to collect data from smartphone consumers in the Delhi NCR region.

The questionnaires will be designed to address the study variables and research questions for the current study. (Mohajan, 2020). The quantitative research employs a survey and questionnaire method for gathering primary data (Sürücü & Maslakçi, 2020). The research utilises the quantitative data, which is gathered through questionnaires. The research instrument employed in the present study is a questionnaire. The data will be collected from smartphone consumers in the Delhi NCR region. The primary data collected is nearly 100% from smartphone consumers. The questionnaire is structured around specific variables. The research design provides the complete framework of research (Figure 1). The process of delivering a précised framework on which the study will be conducted is denoted as the research design.

Figure 1
Conceptual Framework



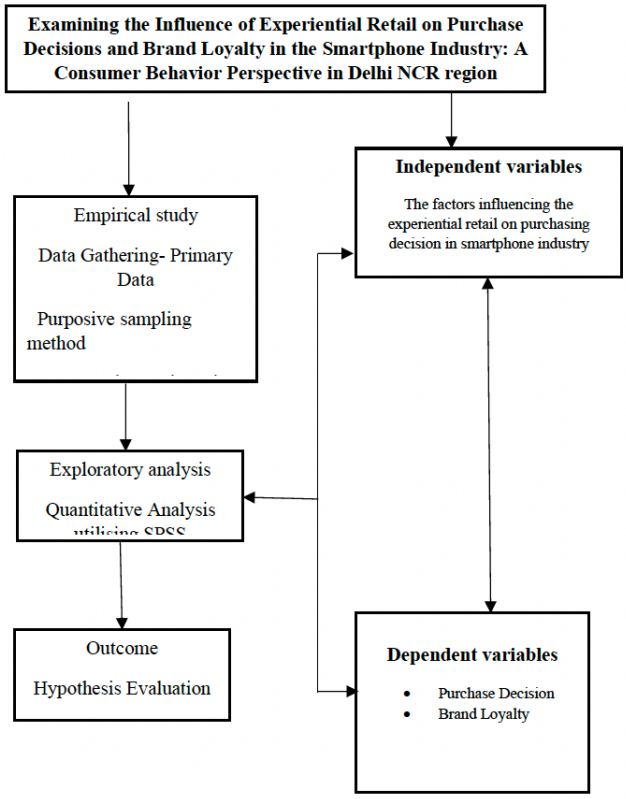
Source: Own elaboration.

Hypothesis

- *H1: There is a significant impact of brand loyalty among consumers in the smartphone industry.*
- *H2: Factors of experiential retail have a significant impact on the purchase decision*
- *H3: There is a significant association between consumer attitude and purchasing decision of smartphones in the Delhi NCR region.*

The data is gathered from the graduates. Inaugurating the association and link amongst the variables designated in this study is achieved by employing ANOVA evaluation and frequencies of the variables. The procedure encompassed in the study is demonstrated in Figure 2. The independent variables are the factors influencing experiential retail on purchasing decisions in the smartphone industry. The dependent variables are Purchase Decision and Brand Loyalty.

Figure 2
Research Strategy



Source: Own elaboration.

Data Collection Strategy and Participants

The most important stage of research is the data collection process. This is based on the emphasis on the objectives of the research, which aim to increase logical knowledge of research questions. The primary responsibility of a researcher is to select an appropriate data collection method. The study surveyed 100 smartphone consumers, a sample size chosen due to practical constraints and in line with similar exploratory studies in the field. The data were collected from smartphone consumers to reveal the factors affecting purchase decisions and brand loyalty.

Data Sampling and Sample Size

For any research, the sample size of the study must be selected carefully to ensure a generalised and accurate outcome (Stratton, 2021). In the current study, a suitable sample will be chosen to the extent that it receives information concerning the perception of employees in various industrial sectors (Lakens, 2022).

The value of information for the quantitative approach relies on the final sample size, which enables researchers to achieve their research objective, rather than on the initially selected

sample size. The current study will utilise the Purposive sampling method to choose sample participants who can participate in the survey, focus on individuals aged above 20, as they are typically more engaged with experiential retail, include participants who frequently shop in experiential retail environments and target consumers who have shown loyalty to specific brands that emphasise experiential retail in their marketing strategies.

Regarding the outcome of the study, the method of selecting a sample size that represents a particular group of respondents is referred to as the sample technique (Fowler & Lapp, 2019). The most common methods for selecting participants are probability sampling and non-probability sampling.

Systematic sampling, simple random sampling, cluster sampling, and stratified random sampling fall under the probability sampling methods, whereas purposive and snowball sampling fall under the non-probability sampling methods (Adhikari, 2021). The samples under this purposive sampling approach are obtained from 100 smartphone consumers.

Research Instrument

The research is employed in tutoring, health sciences, and social sciences to monitor scholars and clients. The probable research involves a structured questionnaire administered to numerous respondents. The mechanism used in the study is a structured questionnaire, which is revealed through the survey questions. The questionnaires were considered and distributed to graduates. Each sample holds a similar probability to other research samples of being chosen, serving as a demonstration of the entire populace. Data was gathered using a structured questionnaire divided into three sections: demographics, smartphone usage and purchase behaviour, and satisfaction with smartphone features and services. All items were measured on a 5-point Likert scale (1 = Strongly Disagree, 5 = Strongly Agree).

Research Variables

Each questionnaire item was coded numerically on a scale of 1 to 5. The primary dependent variable was overall satisfaction with the purchased smartphone. Independent variables included after-sales service satisfaction, customer service quality, and preference for in-store experience. Composite variables were created by averaging relevant items where appropriate. Dependent Variables: Overall satisfaction, preference for in-store experience. Independent Variables: After-sales service, customer service, friendliness of employees, product features, pricing, and brand identity.

Data analysis

Quantitative analysis (Jung, 2019) is adopted in the research. The procedures for gathering data from various sources to inform the study's conclusions are referred to as data collection.

The data collection procedures incorporate the identification of data type, data sources, and the techniques required to be employed.

Data collection plays a significant role in the arenas of commerce, government, and research. The procedures for gathering data involve online surveys, interviews, social media surveys, online tracking, and transactional tracking in business analytics. The data collection procedures involve two methods: primary data collection and secondary data collection.

The data analysis exhibits the integrated theoretical and empirical data, respectively. The methods of data analysis demonstrate the process of forming the research outcome using statistical tools after evaluating the collected data in relation to the theoretical background (Purwanto et al., 2020). The data analysis employs two methods: qualitative data analysis and quantitative data analysis. The current study employs a quantitative data analysis method using aggregated data from the research participants. The data collected from the targeted participants using a survey-based questionnaire will be analysed using Microsoft Excel to identify the study variables (Kafle, 2019).

SPSS software is utilised by many researchers to analyse both quantitative and qualitative data. The software will perform various text analyses, descriptive statistical analyses, data integration, open-source extensibility, and machine learning algorithms. Primarily, SPSS software will be used for both empirical and qualitative analysis, incorporating the data collected from the targeted participants.

The software will convert and cover the scale of the questions. This software will aid researchers in enhancing their projects by identifying study problems and providing solutions for the identified issues through statistical analysis. Moreover, this software is utilised for testing the study's hypothesis and assessing the statistical effect among the study variables. Therefore, the current study will utilise SPSS software to analyse the test hypothesis.

Ethical considerations

Specific ethical guidelines will be followed during the research analysis. The study examines the impact of employee proposition, value, and employer branding on employee retention. Various factors influence an employer's decision in selecting employees. The morals followed in the study are those presented by the researcher's survey evaluation, and the data are passed to the participants in the prior phase.

The participants are not compelled in any way to provide their responses. Only those who are all willing to respond were selected for the survey analysis. Only the responses to the questionnaire are requested from the participants; their private data or reports are not required to be disclosed by them. Since the study uses primary data for data analysis, it doesn't contain

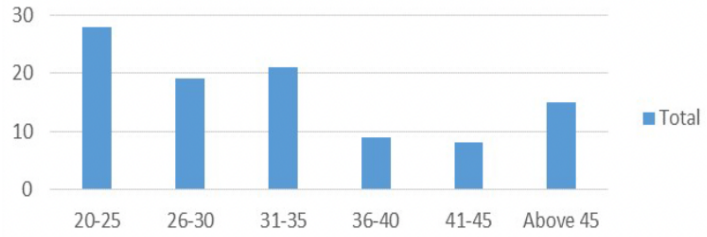
any false data. All the data gathered and organised would be kept highly confidential. These are the ethical considerations employed by the scholar in their analysis, which are based on the knowledge gained from this research study.

RESULTS

The data collected via survey questionnaires were examined using the software tool SPSS and analysed for their outcomes based on the variables used in the study. The results align with the study's objectives through the research design. Moreover, a detailed analysis of the responses is performed based on the different demographics.

Graph 1 illustrates the age group of the participants. Most respondents are in the 20-25 age group. This group makes a significant contribution to the research study. Such a group has updated knowledge of the smartphone industry. Their contribution enhances the research, making it more precise and accurate.

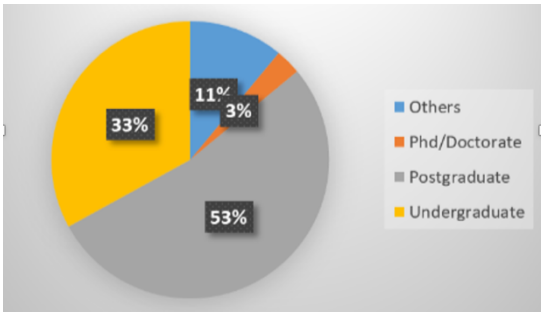
Graph 1
Age Group



Source: Own elaboration.

The educational background of the respondents is analysed. Almost 53% of the respondents are post-graduates. Thirty-three per cent of respondents completed an undergraduate degree. Only 3% of the respondents have a doctorate. 11% are responded as others. Post-graduate respondents contributed more to the research purposes (Graph 2).

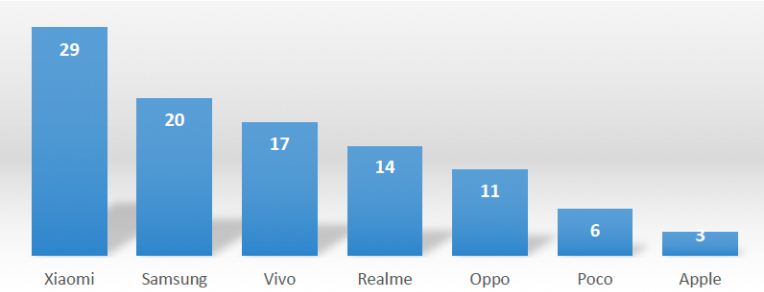
Graph 2
The educational background



Source: Own creation.

Graph 3 illustrates the brands of smartphones that are widely used in the smartphone industry. Twenty-nine per cent of respondents report using a Xiaomi phone. Twenty per cent of respondents prefer Samsung as their brand. Followed by Vivo, Realme, Oppo and others.

Graph 3
Consumers widely use the brand of smartphones



Source: Own elaboration.

One-way ANOVA Test

It is used to determine the impact of independent factors and research objectives on the dependent variable, and also to investigate variations. The descriptive analysis Table 2 shows that among 100 respondents evaluating their satisfaction with their purchased smartphone brand, the majority expressed high satisfaction: those who "strongly agree" (N=42) had the lowest mean score (M=1.45, SD=0.50), indicating the highest satisfaction, while those who "agree" (N=35) also reported relatively high satisfaction (M=1.91, SD=0.56). Neutral responses (N = 17) reflected moderate satisfaction (M = 2.71, SD = 1.26), and those who "disagree" (N = 6) had a mean of 2.00, suggesting dissatisfaction but with no variability (SD = 0). Overall, the total mean satisfaction score was 1.86 (SD = 0.82), indicating that most users were satisfied with their smartphone purchase.

Table 2
Descriptive analysis

		N	M	SD	SE	95% CI		Min.	Max.
						L	U		
Based on your own experience, how would was your satisfaction on your purchased smartphone brand.	strongly agree	42	1.452	.5038	.0777	1.295	1.609	1.0	2.0
	agree	35	1.914	.5621	.0950	1.721	2.107	1.0	3.0
	neutral	17	2.706	1.2632	.3064	2.056	3.355	1.0	5.0
	disagree	6	2.000	.0000	.0000	2.000	2.000	2.0	2.0
	Total	**100**	**1.860**	**.8167**	**.0817**	**1.698**	**2.022**	**1.0**	**5.0**
I am satisfied with the after sales service of my smartphone	strongly agree	42	1.762	.8208	.1266	1.506	2.018	1.0	3.0
	agree	35	2.400	.7356	.1243	2.147	2.653	1.0	4.0
	neutral	17	1.941	.5557	.1348	1.655	2.227	1.0	3.0
	disagree	6	3.000	.0000	.0000	3.000	3.000	3.0	3.0
	Total	**100**	**2.090**	**.8052**	**.0805**	**1.930**	**2.250**	**1.0**	**4.0**

Source: Own elaboration.

Regarding after-sales service, satisfaction levels were slightly lower: "strongly agree" (N = 42) had a mean of 1.76 (SD = 0.82), "agree" (N = 35) reported a mean of 2.40 (SD = 0.74), and "neutral" (N = 17) had a mean of 1.94 (SD = 0.56), while "disagree" (N = 6) reported a mean of 3.00 (SD = 0), indicating apparent dissatisfaction.

The overall mean for after-sales service satisfaction was 2.09 (SD = 0.81), indicating that while users are generally satisfied with their smartphones, their satisfaction with after-sales service is lower, with some users expressing notable dissatisfaction. This trend aligns with broader market findings, where consumers report higher satisfaction with device quality and features. Still, after-sales service remains an area needing improvement, as also reflected in recent industry surveys.

Table 3
ANOVA

		SOS	df	M^2	F	Sig.
Based on your own experience, how would was your satisfaction on your purchased smartphone brand.	Between Groups	19.363	3	6.454	13.275	.000
	Within Groups	46.677	96	.486		
	Total	66.040	99			
I am satisfied with the after sales service of my smartphone	Between Groups	13.230	3	4.410	8.308	.000
	Within Groups	50.960	96	.531		
	Total	64.190	99			

Source: Own elaboration.

The ANOVA results in Table 3 indicate that there are statistically significant differences in satisfaction levels among the different groups for both overall smartphone brand satisfaction and after-sales service satisfaction. For satisfaction with the purchased smartphone brand, the F-value is 13.275 with a significance (Sig.) level of .000.

For after-sales service satisfaction, the F-value is 8.308 with a significance level of .000. Since both significance values are less than 0.05, this means that the differences in mean satisfaction scores among the groups are not due to chance and are statistically significant, suggesting that respondents' satisfaction varies meaningfully based on their groupings (such as their level of agreement or other demographic factors). This aligns with findings in the literature that factors like service quality, product quality, and demographic variables can significantly influence customer satisfaction with smartphones.
H1: There is a significant impact of brand loyalty among consumers in the smartphone industry, as proven by the above test.

Regression
The regression technique is used to determine the statistical value of a variable. This test is utilised to evaluate the relationship among the dependent variable, the independent variable, and the study variable.

The results from Table 4 and Table 5 indicate that customer service, after-sales service, and the friendliness of showroom employees have a statistically significant, albeit modest, positive effect on consumers' preference for experiencing mobile features in-store before purchase (F = 4.072, p = .046; standardised beta = 0.200, p = .046).

Table 4
ANOVA[a]

Model		SOS	df	M^2	F	Sig.
1	R	2.958	1	2.958	4.072	.046[b]
	Re	71.202	98	.727		
	Total	74.160	99			
a. Dependent Variable: I prefer to have the opportunity to see, use, and experience the mobile features before making a purchase						
b. Predictors: (Constant), Customer service, after sales service and friendliness of employees of the showroom make me buy smartphone from the showroom.						

Source: Own elaboration.

Table 5
Coefficients[a]

Model		Unstd Coeff.		Std Coeff.	t	Sig.
		B	SE	β		
1	(Constant)	1.324	.214		6.195	.000
	Customer service, after sales service and friendliness of employees of the showroom make me buy smartphone from the showroom.	.148	.073	.200	2.018	.046

a. Dependent Variable: I prefer to have the opportunity to see, use, and experience the mobile features before making a purchase

Source: Own elaboration.

This suggests that when consumers perceive better service and employee friendliness, they are more likely to value and seek out opportunities to physically see, use, and experience smartphones before making a purchase. This finding is consistent with broader research indicating that service quality, personalised attention, and the ability to interact with products directly are key factors influencing smartphone purchase decisions, as they enhance consumer confidence and satisfaction throughout the buying process.

H2: Factors of experiential retail have a significant impact on the purchase decision, as proved by the regression analysis.

The frequency analysis in Table 6 reveals that "quality" is the most influential factor for consumers when purchasing a smartphone, cited by 47% of respondents, followed by "brand identity" (27%) and "pricing" (16%). Other factors such as "interaction," "ambience," "customer services," and "innovation" were mentioned far less frequently, each accounting for 4% or less. This indicates that while aspects like service, innovation, and store environment play a role, the majority of consumers prioritise the intrinsic quality of the smartphone and the strength of the brand, with pricing also being a significant consideration. These findings align with broader consumer behaviour trends, where product quality and brand reputation consistently top the list as drivers in technology purchase decisions.

Table 6
Frequency Analysis

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Interaction	4	4.0	4.0	4.0
	Ambiance	1	1.0	1.0	5.0
	Brand identity	27	27.0	27.0	32.0
	customer services	3	3.0	3.0	35.0
	Innovation	2	2.0	2.0	37.0
	pricing	16	16.0	16.0	53.0
	quality	47	47.0	47.0	100.0
	Total	100	100.0	100.0	
Total		100	100.0		

Source: Own elaboration.

Correlation

The strength of the association among the factors is recognised through the correlation test. It is a statistical technique used for data exploration and to measure the strength of the association between measured characteristics. It will measure their association through the Pearson correlation coefficient. The correlation analysis in Table 7 reveals a strong, statistically significant positive relationship ($r = 0.667$, $p = 0.000$) between the belief that a newly launched smartphone should be cost-friendly and the importance placed on technical features such as internal memory, fast charging, external memory, and display protection when purchasing a smartphone. This suggests that consumers who prioritise affordability in updated smartphone models also tend to value advanced technical specifications highly in their purchase decisions. Such findings are consistent with broader research, which shows that price sensitivity and product features are both significant and often interrelated factors influencing smartphone purchase intentions.

H3: There is a significant association between consumer attitude and purchasing decision of smartphones in the Delhi NCR region, as proved by the above correlation test.

Table 7
Correlation

Control Variables			The model launched with updated version should be cost friendly	Factors I consider while purchasing a smart phone is internal memory, fast charging, external memory, display protection.
You think that owning a smartphone from a particular brand reflects your personality or social status	The model launched with updated version should be cost friendly	Cr	1.000	.667
		Sig. (2-tailed)	.	.000
		Df	0	97
	Factors I consider while purchasing a smart phone is internal memory, fast charging, external memory, display protection.	Cr	.667	1.000
		Sig. (2-tailed)	.000	.
		df	97	0

Source: Own elaboration.

DISCUSSION

Each section integrates relevant findings from the cited literature to provide clear support for the respective hypothesis.

H1: There is a significant impact of brand loyalty among consumers in the smartphone industry

Brand loyalty plays a crucial role in shaping consumer behaviour in the smartphone industry. (Shaikh et al., 2023) demonstrated that customer satisfaction and loyalty are significantly influenced by branded smartphones, with quantitative analysis confirming a strong positive relationship between customer satisfaction and loyalty. The study utilised correlation and regression analyses, reinforcing the assertion that brand loyalty is a key determinant in repeat purchase decisions and sustained consumer engagement.

Similarly, Hussain et al. (2020) emphasised the significance of branding elements, specifically brand equity and brand experience, in shaping purchase decisions. Their findings, based on expectation confirmation theory, revealed that substantial brand equity and positive brand experiences not only drive purchase decisions but also ensure consumer retention and ongoing loyalty. These results are consistent with the present study's findings, which also confirm a significant positive impact of brand loyalty on consumer purchase decisions in the smartphone market.

H2: Factors of experiential retail have a significant impact on the purchase decision

Experiential retail factors, such as in-store experiences, product demonstrations, and personalised services, are increasingly influential in consumer purchase decisions for smartphones. (Bali et al., 2023) proposed a contemporary framework for analysing consumer buying behaviour, identifying that both internal (personal traits) and external factors (social influence, price, and product features) significantly affect smartphone purchase decisions. The regression analysis revealed that these factors collectively account for a substantial portion of the variance in buying decisions.

Furthermore, the study's results align with broader research indicating that experiential elements, including the retail environment and interactive experiences, enhance consumers' perceptions of value and influence their purchasing decisions. The positive impact of experiential retail on purchase decisions is thus well-supported, underscoring the importance of creating engaging retail experiences to drive consumer action in a competitive market.

H3: There is a significant association between consumer attitude and purchasing decision of smartphones in the Delhi NCR region.

Consumer attitudes, shaped by sociodemographic characteristics, personal preferences, and social influences, are closely tied to purchasing decisions in the smartphone sector. The quantitative approach employed by Prahiawan et al. (2022) established a positive relationship between perceived quality and consumer purchase decisions, indicating that favourable attitudes toward product quality lead to a higher likelihood of purchase.

Moreover, Bali et al. (2023) found that personal factors (such as age, occupation, and gender), along with external influences (social networks, price, and technical features), significantly impact buying decisions. Their regression model confirmed that these variables explain a significant proportion of the variance in smartphone purchase decisions, with individual traits exerting the most critical influence. These findings reinforce the present study's results, which demonstrate a significant association between consumer attitudes and purchasing decisions, particularly in the Delhi NCR region.

The present study has several limitations that pose challenges for future studies. The main limitation of the paper is that the participants in the research are only from the Delhi NCR region in India. Therefore, the obtained results can't be applied to other factors. The second limitation denotes that the present study used brand loyalty as a general construct, not analysing the various brand and loyalty dimensions separately.

The findings of this research highlight the potential for smartphone brands to strengthen brand loyalty through experiential retail strategies. By creating immersive in-store experiences, such as interactive demonstrations and augmented reality, brands can engage customers on a deeper emotional level. Personalised interactions, including tailored recommendations and loyalty programs, further enhance customer satisfaction and encourage repeat purchases. Additionally, seamless omnichannel integration allows for a cohesive shopping experience that reinforces brand identity. Ultimately, these strategies not only influence purchase decisions but also cultivate long-term relationships with consumers, driving growth in the competitive smartphone industry.

CONCLUSIONS

The findings of this research confirm that experiential retail plays a vital role in influencing purchase behaviour and brand loyalty within the smartphone market, especially in the Delhi NCR area. The study indicates that quality is the most important attribute for consumers when selecting a smartphone during an experiential retail environment, followed by brand reputation, pricing, brand personality, customer care, and innovation. These findings align with prior research, which highlights that experiential retail initiatives, such as interactive

product demonstrations, in-store atmosphere, and customised customer interactions, increase customer satisfaction, foster emotional bonding, and promote repeat purchasing.

Various studies (Song & Sela, 2023) have also highlighted that experiential retail surpasses conventional transactional models by providing memorable and engaging shopping experiences that stimulate the senses, encourage participation, and foster lasting brand relationships. For instance, research has established that brands such as Apple and Samsung utilise experiential retail through hands-on product demonstrations and interactive events, which not only differentiate them from others but also foster customer loyalty and advocacy.

In addition, the frequency analysis of the current study confirms that consumers appreciate not only the functionality of smartphones but also the overall experience offered by the store environment. This aligns with the general industry trend, whereby retailers are embracing more sophisticated technologies and innovative approaches to designing more engaging, shareable, and personalised shopping experiences.

In conclusion, this research confirms that experiential retail is a significant influencer of both purchasing decisions and brand loyalty within the smartphone industry, aligning with other researchers who advocate for experiential, customer-focused retail practices as a prerequisite for business expansion and viability in the digital economy. Retailers are thus prompted to innovate their experiential experiences constantly to stay ahead in the competition and enhance consumer loyalty.

The study recommends a DEMATEL analysis to identify the critical decision factors influencing consumer purchasing behaviour when buying smartphones. DEMATEL analysis employs a multidimensional approach to consumer purchasing behaviour (Bali et al., 2023). The present study also recommends adopting Artificial Intelligence (AI) in experiential retail. Targeted audience and customers' frequent purchases can be easily tracked with the help of AI. The paper recommends futuristic approaches for determining other factors that affect purchasing behaviour in experiential retail.

Enhancing the experiential retail strategies

Captivating store layouts and experiential design enhance customer engagement. Advanced technologies such as augmented reality (AR), interactive screens, and virtual reality (VR) help customers better understand the product. Significantly, staff members empowered with product knowledge can easily interact with consumers.

Strengthening brand loyalty in the smartphone industry

Customer satisfaction plays a crucial role in fostering brand loyalty. Implementing an innovative framework for the brand helps the smartphone industry to strengthen brand loyalty.

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Generational Perspectives on Fintech Adoption: Challenges, Demographics, and Digital Inclusion

Perspectivas generacionales sobre la adopción de tecnología financiera: desafíos, demografía e inclusión digital

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ABSTRACT

This research aims to examine how different generations in India adopt fintech services, considering the main barriers and demographic factors that influence these patterns. Based on a survey of 278 banking customers in Punjab and Jammu and Kashmir, it is evident that Generation Z and millennials have embraced fintech services more than Generation X, with key obstacles including a lack of technical skills, concerns about cybersecurity, and strict regulations. The findings suggest that implementing measures tailored to each generation will be essential in promoting digital financial services and bridging the gap between those who can access these services and those who cannot. Although fintech companies are increasingly recognised in the payments industry, the primary challenges to the rapid growth of the fintech ecosystem in India include "lack of technical know-how," "low security (fraud messages, calls, etc.)," regulatory and compliance laws, "documentation and formalities," and "emotional attachment to cash." Governments, financial institutions, regulators, and Indian fintech firms must collaborate to address these structural issues from the ground up, expand their reach, enhance consumer satisfaction, and make digital channels more accessible.

Keywords: Challenges, Fintech, Generations, Millennials, Sustainability and Technology.

Jel Code: G53, O33.

RESUMEN

Esta investigación busca analizar cómo las distintas generaciones en India adoptan los servicios fintech, considerando las principales barreras y aspectos demográficos que definen estas tendencias. Con una muestra de 278 clientes bancarios en Punjab y Jammu y Cachemira, se evidencia que la Generación Z y los millennials han adoptado los servicios fintech en gran medida en comparación con la Generación X. Entre las barreras más importantes se encuentran la falta de habilidades técnicas, la preocupación por la ciberseguridad y las estrictas regulaciones. Los hallazgos demuestran que la implementación de medidas adaptadas a cada generación será fundamental para promover los servicios financieros digitales y reducir la brecha entre quienes pueden utilizarlos y quienes no. Si bien las empresas fintech son cada vez más reconocidas en el sector de pagos, los principales obstáculos para el rápido desarrollo del ecosistema fintech en India son la falta de conocimientos técnicos, la baja seguridad (mensajes y llamadas fraudulentas, etc.), las leyes regulatorias y de cumplimiento, la documentación y los trámites, y el apego emocional al efectivo. Los gobiernos, las instituciones financieras, los reguladores y las empresas Fintech indias deben trabajar juntos para abordar estos problemas estructurales desde la base, ampliar su alcance, mejorar la satisfacción del consumidor y hacer que los canales digitales sean más aceptables.

Palabras clave: Desafíos, Fintech, Generaciones, Millennials, Sostenibilidad y Tecnología.

Código Jel: G53, O33.

INTRODUCTION

According to Alshater et al. (2022) and Lim et al. (2019), fintech refers to financial technology services that are shaped by merging finance and technology to create more accessible and affordable financial services. Fintech, also referred to as financial technology, is the use of technology in the development and provision of financial services and products. It has an impact on regulators, consumers, financial institutions, and entrepreneurs across multiple industries.

Penetrant digital technology is challenging the foundations of the highly regulated financial sector, as seen by the rise of peer-to-peer money exchanges, non-traditional payment systems, and rising currency market volatility. Fintech is also affecting how financial services are created, advertised, delivered, and used (Mention, 2021). Fintech is a rapidly expanding industry that benefits businesses and consumers alike in many ways. Fintech is increasing. (Nathan et al., 2022; Karim et al., 2022).

Fintech is at the vanguard of this new phenomenon, which is regarded as the fifth "Industrial Innovation Driving Development" due to the information and telecommunications (IT) revolution (Hendrikse et al., 2018). Numerous businesses, such as banking, insurance, trading, logistics, and e-commerce payment, are using fintech (Dubey, 2019).

Fintech aligns primarily with the Fourth Industrial Revolution (Industry 4.0), characterised by digital transformation, data analytics, and intelligent automation. While some aspects of sustainability-driven innovation overlap with concepts of a “fifth” revolution, Fintech’s current mainstream evolution is rooted in Industry 4.0 (Kubus et al., 2025). According to Tiwari and Kartika (2019), fintech offers a platform that enables users to validate their bank balances, make payments, and complete account-related transactions over the internet and mobile devices.

The bulk of banks and other financial institutions fight for this enormous consumer market since mobile Internet users prefer to obtain financial services through electronic devices. Lee et al. (2012) concluded that with the COVID-19 upsurge, physical markets and cross-border economic transactions were shut down, and Fintech rapidly grew, providing fintech companies with countless opportunities.

Complex financial transactions can now be completed online via smartphones without going to a bank branch or speaking with a bank employee. These transactions include receiving or sending money, making payments, buying online goods and services, dealing with insurance, investing in stocks, opening and managing bank accounts, and applying for personal loans.

Together with mid-sized banks (including specialised banks), small investment banks, cooperative banks, regional rural banks, and tiny banks, fintechs and digital players in India may constitute the fourth segment of the country's financial system (Das & Das, 2020).

More than 2100 Fintech businesses have been launched in India, and over 67% of those have done so in the last five years. Currently, 18 of the 187 Fintech unicorns in the world are headquartered in India. Among them are Pine Labs, Policy Bazaar, Acko, BharatPe, BillDesk, CoinDCX, Cred, Chargebee, Digit, Groww, Paytm, Upstox, Zerodha, Zeta, and Zoho.

The latest Fintech unicorn on our list, Slice, got $220 million in series B fundraising. The Fintech industry in India has also seen a sharp rise in funding; in 2021, over US$8 billion in investments were made at various phases of the sector's development. Amitabh Kant, the CEO of NITI Aayog, states that the Fintech sector in India has garnered over US$27.6 billion in funding and is expected to surpass US$150 billion in valuation by 2025. This industry can significantly change the financial landscape by giving consumers access to a greater range of options at affordable prices and helping financial institutions cut costs and become more efficient.

In a world where financial literacy varies widely, navigating the complexities of money management can feel like deciphering a complex symphony. For many, the instruments of investing, saving, and responsible credit use remain unfamiliar, leading to financial dissonance and missed opportunities. This disparity between financial knowledge and financial well-being transcends generations, creating a gap that hinders long-term security and prosperity. To bridge this gap and create a harmonious financial future, we need an orchestrated approach.

This requires not just individual education, but also a collaborative effort from institutions, policymakers, and financial advisors. By working together, we can create a comprehensive financial literacy movement, one that empowers individuals and families of all ages to understand and manage their money effectively. Imagine a future where financial literacy becomes as fundamental as reading and writing, equipping every generation with the tools to achieve their financial goals and build a secure future.

LITERATURE REVIEW

The Indian government encouraged the growth of FinTech companies by launching the "India Stack" project to bring the people of India into the digital era. According to PwC Startupbootcamp (2017), there will be 500 million smartphone users by 2020, which means

that the digital banking industry is expected to grow at an exponential rate. To better serve their consumers, several financial institutions have recently gone digital and partnered with FinTech companies.

The ICICI Bank has a $1 billion fund for FinTech partnerships. It has created mobile apps for different customer segments, including iMobile (a banking app), iPal (an AI-powered chat box), iBiz (a mobile app for corporate and small and medium enterprises), and Mera iMobile (an e-wallet for rural lending) (Hetankar, 2018).

India and China are far ahead with an adoption rate of 87 per cent, which is greater than the worldwide average of 64 per cent, according to the EY Worldwide FinTech Adoption Index (2019). Although metropolitan areas have a higher acceptance rate, the government has made substantial efforts to increase FinTech usage there. With the use of financial technology, customers may make payments, get insurance, manage their assets, and obtain loans. As a result, the banking industry uses financial technology to modernise banking services and improve user experience.

India is ranked as the world's rapidly expanding fintech market as well as the 3rd largest total fintech ecosystem (Mankotia, 2020). The establishment of the 'India Stack' by the Indian government facilitated the development of fintech innovations, which are creating integrated development services to incorporate people in India into the digital realm. Banking customers are gradually becoming conscious of the benefits of Fintech, such as low-cost transactions, convenient access, and practical solutions. (Saksonova & Kuzmina-Merlino, 2017).

This motivates individuals to use technology-enabled financial services. Fintech enhances the self-reliance of both banking firms and consumers by reducing travel and documentation time and cutting costs through collaboration. (Das, 2019). Fintech services are becoming increasingly competitive in terms of both retaining and attracting potential consumers. Previous research looked into how customers adopt fintech, focusing on aspects including risk perception and cybersecurity, perceived benefits of use, and user satisfaction (Lim et al., 2019).

Domestic and international academics have conducted several studies from different perspectives on the relationship between technical advancement and financial innovation. Sci-tech finance has advanced significantly since McKinnon and Shaw's initial "Financial Deepening" proposal in 1973 (Nakashima, 2018).

Fintech, as opposed to the idea of offering financial services to scientific and technology businesses, can be described as new tools that utilise cutting-edge information technologies, such as big data, the Internet of Things, and cloud computing, to expand the scope of financial

service offerings. Keke Gai et al. (2017) highlighted that utilising a new generation of information technology, one company's fintech division would increase service quality and management effectiveness.

Therefore, by implementing technology in the banking industry, financial services may become more effective and comprehensive. Fintech is growing sustainably, and there have been numerous technological advancements in this area, including big data, cloud computing, data analytics and Internet of Things (Yin & Gai, 2015).

Du et al. (2018) categorised the primary concerns of security and privacy in Fintech into four dimensions: data orientation, facilities and equipment, applications, and service models. According to Buckley et al. (2015), Fintech is an application of technology to traditional financial services to increase the breadth of those services rather than just combining information technology with financial services. Few studies on the uptake of fintech services have been conducted in India, which has emerged as the world's fastest-expanding fintech market.

To stimulate debate and prospects that may be relevant for decision makers and regulators, this article aims to offer a succinct overview of the Fintech ecosystem, the link between distinct demographic characteristics and fintech service acceptability, and the constraints that bank clients encounter while accessing Fintech services. State Bank of India (SBI), one of the leading public sector banks, has also created apps, such as YonoLite and SBI's chat box SIA, that are intended to address inquiries and offer its clients user-friendly services.

Therefore, utilising technology in the banking, financial services, and insurance sectors will help to reach underserved populations, offer bank customers a better and more creative banking experience, and aid banks to prosper. Technology advancements have produced flexible payment methods and user-friendly bank services for bank consumers. People carry out their payment operations using mobile wallets like Paytm, MobiKwik, and Unified Payment Interface (UPI).

Financial Literacy Landscape and Generational Gap

Reserve Bank of India (RBI). "Financial Literacy and Inclusion Survey, 2019." This report provides a foundational analysis of financial literacy levels in India. It identifies areas where knowledge and awareness are lacking, particularly across different age groups and demographics. It highlights the specific challenges faced by younger generations in India regarding financial literacy. It explores factors like educational gaps, evolving financial landscapes, and the growing influence of digital financial services.

Planning Commission of India. "Report of the Working Group on Financial Literacy and Inclusion" (2017), the government report acknowledges the varying financial literacy needs across different age groups in India. It identifies challenges faced by older adults, such as adapting to new financial technologies, and proposes strategies for more inclusive financial education programs. In the grand concert of financial well-being in India, a discordant note disrupts the harmony: the gap between financial knowledge and financial behaviour across generations. This gap, a defining feature of the Indian financial literacy landscape, hinders long-term financial security for all age groups.

Younger generations in India, while comfortable with technology, may lack the financial literacy fundamentals to navigate the complexities of digital financial services. Older adults, on the other hand, might struggle to adapt to these new technologies and require tailored educational resources. This generational disparity underscores the need for a multi-pronged approach that caters to the specific needs of each demographic. Bridging this gap requires a collaborative effort, a financial literacy symphony where all stakeholders play a part in ensuring financial literacy education reaches every generation in India.

Collaborative Efforts for Bridging the Gap

International Monetary Fund (IMF). "India: Financial Sector Assessment." (2022). This IMF report emphasises the need for a collaborative approach to promote financial literacy in India. It highlights the importance of partnerships between the government, financial institutions, NGOs, and educators to create a comprehensive and effective strategy. Government of India, Ministry of Finance. "National Strategy for Financial Education (NSFE)." (2020)

This government initiative outlines a framework for collaborative efforts. It defines the roles of various stakeholders, including policymakers, financial institutions, and community organisations, in promoting financial literacy across generations. Atray, Subhashini, et al. (2017) offer a critical review of existing literature on financial literacy in India. It highlights the persistent gap between financial knowledge and financial behaviour, emphasising the need for targeted interventions. World Bank. "Global Findex Database 2021". The World Bank database provides data on financial inclusion and literacy indicators across various countries, including India. It can be used for comparative analysis and to identify areas where India can improve.

The discordant notes of India's financial literacy landscape can only be harmonised through a collaborative effort, a well-orchestrated symphony of stakeholders. Imagine the government setting the national financial literacy strategy, which guides the movement. Financial institutions become instrumentalists, integrating financial literacy modules into onboarding processes and offering financial counselling. Educators are the conductors who

seek to incorporate financial literacy into the curriculum at every level of education, from primary school to higher education.

At the same time, NGOs and policy-makers support this movement by addressing the respective communities and establishing the regulatory frameworks for transparency and accessibility of the financial products. Such an all-round collaborative effort by each stakeholder is what can pave the way to eliminating the financial literacy gap in India. Together, we can orchestrate a financial literacy symphony that will allow all generations to make sound financial decisions and build a future they can trust.

Financial Literacy Programs, Interventions and Developments

Banerjee et al. (2015) explore the effectiveness of a financial literacy intervention in India, offering insights for program design. Chakravarty and Roy's (2018) review article analyses the effectiveness of existing financial literacy programs in India, identifying strengths and weaknesses.

Demirguc-Kunt et. al. (2009) establish a positive link between financial inclusion and economic development, highlighting the importance of financial literacy, while Levine (2005) explores the theoretical and empirical relationship between financial development and economic growth, providing a broader context for the importance of financial literacy in India.

Agarwal, & Qian (2019) on the other hand, analyses the impact of digital technologies on financial inclusion in India, raising considerations for promoting financial literacy through digital channels and World Bank; the Fintech Effect report (2022) explores the potential of Fintech solutions for promoting financial inclusion and literacy, particularly relevant for younger generations in India.

Bridging the gap in India's financial literacy landscape requires a diverse orchestra of programs and interventions. Imagine workshops and online modules acting as the strings, providing foundational financial knowledge tailored to different age groups. Mobile applications, like user-friendly digital instruments, can make learning accessible and engaging, particularly for younger generations. Community outreach plays the role of the brass section, amplifying the message and reaching those in underserved areas.

These programs and interventions should be constantly evolving, adapting to the ever-changing financial landscape. Recent developments, like gamified learning modules or leveraging social media for financial education campaigns, can be incorporated to keep the audience engaged. By offering a variety of instruments and melodies, this "financial literacy

orchestra" can ensure all generations in India have the tools and knowledge to achieve financial well-being.

To enhance the academic and scientific value of the research and to comply with modern standards of research, recent literature reviews from Scopus and Web of Science (WoS) have been incorporated. For example, Kishor et al. (2025) looked at digital financial inclusion intergenerationally after the pandemic and recognised age-specific barriers to adoption.

Similarly, Kumar and Rani (2025) carried out a comparative study that placed the generational divide in Fintech perceptions on the foreground, and Sharma et al. (2025) researched the role of trust and technological readiness in the Fintech engagements of rural Indian youth. Such literature is recent and relevant, and its inclusion contributes to strengthening the credibility and relevance of the findings. It provides a valuable context for policymakers and financial institutions that seek to increase the level of inclusivity of Fintech.

RESEARCH METHODOLOGY

The current study intends to investigate the Fintech ecosystem, the relationship between different demographic characteristics and the adoption of Fintech services, as well as the challenges users in India face while embracing Fintech services. Based on primary and secondary data collected via questionnaire surveys, journals, reports, and news stories, this study has an experiential and quantitative design.

A questionnaire that was individually administered was used to survey 300 respondents in total, the majority of whom were banking customers. Just 278 of the sample's total questionnaires were determined to be legitimate for the research. Twenty-two more surveys were returned because they contained errors and lacked necessary information.

Target respondents were asked to indicate how much they agreed or disagreed with each of the identified barriers to the adoption of Fintech services on a five-point Likert scale (1 being strongly disagree, and five being strongly agree).

The validity of the questionnaire to be delivered for data collection was confirmed by the results of a pilot test, which was carried out at random with 50 respondents before the field work. Along with the questionnaire, a cover letter outlining the survey's objectives was also provided. The data collection was carried out over four weeks between August and September 2023, both in the Punjab and Jammu & Kashmir.

Surveys were conducted among semi-urban bank branches and the adjoining marketplaces with the help of trained volunteers. The respondents filled the forms on their own once they were guided, and anonymity was ensured. This naturalistic setting, which was controlled, allowed for comprehension and comfort. Data analysed were percentage method, mean, standard deviation, ANOVA and chi-square test. The questionnaire consists of two parts. Whereas "Section B" describes obstacles that bank customers face in accepting Fintech services, "Section A" describes the demographic characteristics of the respondents.

Questionnaire Design and Measured Variables

The research adopted a structured, self-administered questionnaire to collect primary data directly from banking customers in the Northern regions of Punjab and Jammu & Kashmir. The survey was divided into two separate parts. Section A reflected respondents' ages, genders, annual incomes, educational attainment, and the industry they worked in. The purpose of section B was to measure respondents' views on the impediments to using the Fintech services. A five-level Likert scale was used in the survey to measure the respondents ' perception of barriers. These were variables that were brought out from the previously validated studies to ensure that both content relevance and theoretical soundness were maintained.

Validity and Reliability of the Instrument

To validate the questionnaire, a pilot study was conducted on 50 randomly selected respondents. Pilot test feedback supported the instrument's face validity, and a few minor tweaks were made to enhance readability and clarity. The internal consistency level was evaluated using Cronbach's Alpha, yielding a score of 0.81 and indicating high reliability. The construct validity was also supported through the use of inferential types of statistical tests, for example, Chi-square and One–way ANOVA, that established meaningful relations between variables of demographics and Fintech adoption as predicted theoretically in the various prior investigations.

Hypothesis testing

Literature makes it abundantly evident that different demographic groups have differing views on the acceptability of fintech services. In order to identify correlations and variations in viewpoint across the groups of respondents, a hypothesis was created and put to the test using Chi-Square and one-way ANOVA.

H_{01}: There is no significant difference between Generation Z, Millennials, and Generation X in rating the challenges of accepting Fintech services.

H_{02}: There is no relationship between gender diversity and acceptance of Fintech services.

H_{03}: There is no association among Generation Z, Millennials, and Generation X in their acceptance of Fintech services.

H_{04}: There is no relationship between income and embracing Fintech services

RESULTS AND DISCUSSIONS

We evaluated respondents' gender, age, and monthly income in the initial part of the data analysis, and then examined their employment and levels of education. According to Table 1, there are 42 per cent of female and 58 per cent of male responses, respectively. Fintech can close the gender gap in financial service accessibility and advance financial inclusion.

Males use Fintech financial services at a higher rate than females, per the sample survey. The need to close the gender gap in technology has never been higher, and Fintechs seem to be setting the standard in areas like microfinance and financial inclusion. Harrison et al. (2000) highlights how gender matters when it comes to financial items.

Table 1
Demographic Characteristics of Respondents

Demographic Characteristics		Number	Percentage
Gender	Male	161	58%
	Female	117	42%
Age	15-25 Years	131	47%
	26-40 Years	92	33%
	Above 40 Years	56	20%
Monthly income	Less than ₹ 30000	72	26%
	₹ 30001 - ₹ 60000	108	39%
	₹ 60001 to ₹ 90000	64	23%
	above ₹ 90000	33	12%
Education Qualification	Below or till 10th standard	58	21%
	12th Standard	67	24%
	Graduate	75	27%
	Post Graduate	67	24%
	Illiterate	11	4%

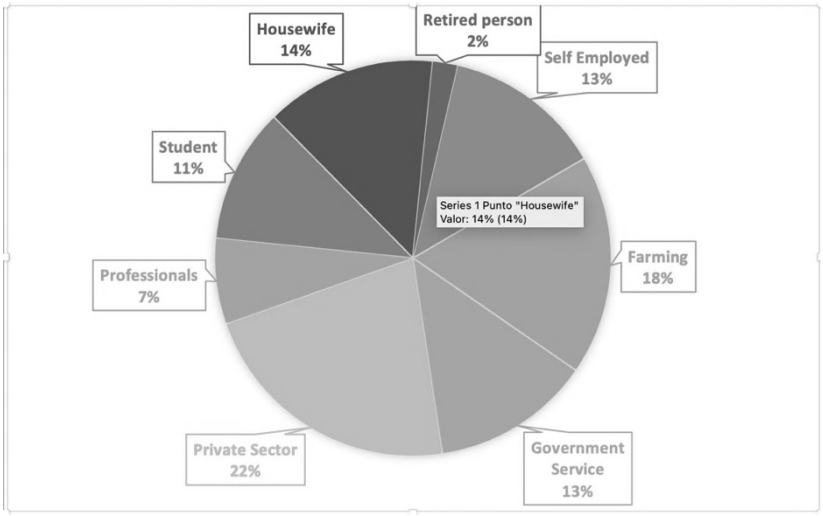
Source: Own elaboration.

According to Betts (1999), wage workers are more often identified with men, and women are usually seen as housewives. However, as a result of improvements in education and technology, there is a greater proportion of working women; these individuals deal with financial institutions and take an active role in the financial decision-making. Based on the age distribution, 47 per cent of participants were in the 15‑25 age range, 33 per cent were in the 26‑40 age range, and just 20 per cent were above 40. People in their 20s to 30s with middle-to upper-class incomes are driving increasing Fintech adoption rates. The groups in question have almost entirely digitised their payments and transfers. 21% of those surveyed

had completed schooling up to or including the tenth grade. 24% had a high school diploma, 61% had a graduate degree or higher, and only 4% were illiterate.

Graph 1 indicates that the respondents are divided into the following groups: self-employed individuals (13%) who work in the private sector, farmers (18%), housewives (14%), and students (11%). A more balanced view is thus obtained, as this shows a balanced participation of varied groups in the study.

Graph 1
Respondents' Primary Occupation



Source: Own elaboration.

Study Area

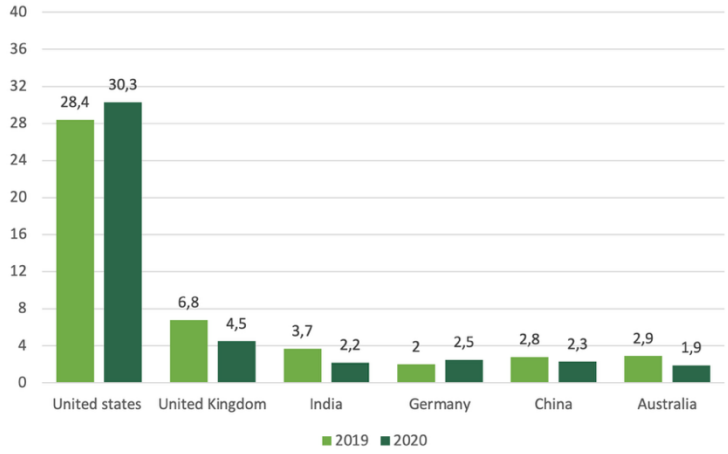
Indian Fintech valuations increased significantly between January 2022 and March 2025, primarily because of the rapid digital shift, favourable policy changes, and a dynamic investment scenario. More and more, fintech is becoming a pillar of Indian financial institutions, and consumers are taking advantage of these platforms to offer more services, including insurance, investment, and lending, beyond just payments. As of 2020, Fintech entities operate in India, and about 67% of these enterprises have joined the market within the last five years, pointing to the dynamic nature of this industry.

Approximately USD 10 billion was invested in India Fintech startups in the last three years. In 2021, eight firms reached valuations surpassing USD 1 billion, and 44 additionally surpassed the USD 100 million barrier. Occasionally in 2025, with a guaranteed nominal value of USD 150 billion, India's bustling Fintech ecosystem is ready to make India a major global Fintech powerhouse.

The explosion of the COVID-19 pandemic had digital payments, especially the ones through UPI, three times higher in volume than in March 2020 to January 2021. The current 43% to

57% of active participation of the clients from Zerodha, Upstox, and 5Paisa, for example, means that Fintech. Besides, other unicorns have emerged through companies such as Pine Labs, Razorpay and Digit Insurance. In contrast, other has soonicorn status in the making.

Graph 2
Comparison of Fintech Investments across Geographies



Source: Own elaboration (Pitchbook, Venture Intelligence, MEDICI, BCG analysis).

The competitiveness of the landscape is demonstrated by the diversity of India's Fintech base. Although over 90% of India's investment flows in 2015 came from the Payment and Alternate solution finance business, since then, there has been a shift in the allocation of investment across sectors towards greater equity.

Ranking challenging in the adaptation of fintech services

This section outlines the main obstacles to the adoption of Fintech services in India from the viewpoint of the users, as well as how various age groups rank these obstacles. On a Likert scale ranging from 1 (strongly agree) to 5 (strongly disagree), respondents were asked to rank the 12 problems found in the literature. A mean score of more than 3.5 indicated that the element is a significant challenge.

Table 2 displays the mean values for the 12 components, which range from 3.95 to 2.84. Only one factor had a mean value less than 2.00, while five had mean values more than 3.50 and six between 3.00 and 3.50. five main obstacles to Fintech adoption in India are: "lack of technical know-how" (mean value 3.95); "low security (fraud messages, calls, etc.)" (mean value 3.92); "regulatory and compliances law mean" (mean value 3.87); "documentation and formalities" (mean value 3.74); and "emotional attachment to cash" (mean value 3.92). Fintech businesses have become increasingly prominent in the payment space. Since many Fintechs are founded on cutting-edge technology, integrating Fintech apps with outdated systems might be challenging.

Table 2
Challenging in the Adaptation of Fintech Services

NO	CHALLENGES	MEAN	STD. DEVIATION	RANK
1	Lack of technical knowhow	3.95	1.03	1
2	Low security (fraud messages, calls, etc.)	3.92	0.83	2
3	Regulatory and Compliance Laws	3.85	0.84	3
4	Documentation and formalities	3.76	0.89	4
5	Emotional attachment for cash	3.64	1.01	5
6	Lack of awareness	3.36	1.77	6
7	Transaction failure	3.18	1.12	7
8	Poor speed of internet	3.16	0.89	8
9	Problem of hacking	3.12	1.13	9
10	High service charges	3.1	1.14	10
11	Problem in the server	3.05	1.26	11
12	Do not have a bank account	2.84	1.08	12

Source: Own elaboration.

Table 2 illustrates that the mean scores of twelve challenging variables derived from the literature range from 3.95 to 2.84. This suggests that the respondents as a whole assign varying degrees of priority to each challenge element in the effective implementation of Fintech services in India.

Table 3
Perceptions of Generation Z, Millennials, And Generation X Regarding the Challenges of Accepting Fintech

No	Challenges	15-25 Years	25-40 Years	Above 40 Years	Total	F-value	Sig. level
1	High service charges	3.22	2.88	3.22	3.11	0.699	0.555
2	Lack of awareness	2.88	2.9	4.3	3.36	4.965	**0.003***
3	Low security (fraud messages, calls, etc.)	3.85	4.2	3.72	3.92	1.256	0.294
4	Emotional attachment for cash	3.62	3.6	3.7	3.64	0.229	0.704
5	Do not have a bank account	2.95	3.02	2.88	2.95	0.125	0.645
6	Transaction failure	2.94	3.16	3.44	3.18	0.877	0.456
7	Documentation and formalities	2.91	3.5	4.9	3.77	3.027	**0.002***
8	Problem of hacking	2.95	3.64	2.78	3.12	0.304	0.822
9	Regulatory and Compliance Laws	3.74	4.12	3.7	3.85	1.05	0.365
10	Lack of technical knowhow	3.5	4	4.35	3.95	2.993	**0.035****
11	Poor speed of internet	3	3.6	2.9	3.17	1.712	0.17
12	Problem in the server	2.87	3.4	2.89	3.05	0.434	0.729

Source: Own elaboration.

Three of the twelve issues are scored substantially by the respondent groups of Generation Z, Millennials, and Generation X, according to the One-Way ANOVA results in Table 3. "Awareness gaps," "formalities and documentation issues," and "technical know-how gaps" are these obstacles. Millennials and Generation Z have far more invested in, knowledge of,

and reliance on technology than does Generation X. Our results are consistent with those of Carlin et al. (2017), who found that Millennials and Gen Z have adopted Fintech at a higher rate due to two main factors: their longer life expectancy and higher level of financial technology understanding then previous generations.

Furthermore, there was no discernible difference in how Generation Z, Millennials, and Generation X perceived the various obstacles to using Fintech services. Most respondents in all categories said that fintech is the most affordable option for both consumers and businesses. Because there are no hidden expenses or costs, unlike in conventional corporate operations, this helps save money. Demographic variables influence the overall adoption of fintech services. This study's objective is to ascertain the connection between the demographic traits of the sample respondents and their acceptance of Fintech services. The theories above have been put out and investigated in response.

H_{02}: There is no relationship between gender and acceptance of Fintech services.

Table 4
Relationship between Acceptance of Fintech Services and Gender

Gender	Never %	Rarely %	Sometimes %	Often %	Frequently %	Chi-Square	P-Value
Male	17	13.6	12	37.4	20	19.6	**0.000**
Female	43.1	14.7	5.9	27.5	8.8		

Source: Own elaboration.

Table 4 above makes clear that, in comparison to female respondents, 58% of male respondents regularly use Fintech-based services. According to the findings, men are more likely than women to use Fintech-based services. The chi-square test supports this, showing a substantial correlation between gender and Fintech service approval ($P<0.05$). We accepted the alternative hypothesis−that there is a significant correlation between age and the use of Fintech services−and rejected the null hypothesis based on the P-value (<0.05).

Table 5 indicates that just 27% of the sample over 40 years old are Fintech users, compared to 66% of respondents aged 15‑25 and 62% of respondents aged 29‑39 who regularly use Fintech services. As a result, younger people are the target market for the majority of innovative financial products and services.

H_{03}: There is no association between Generation Z, Millennials and Generation X in acceptance of Fintech services

Table 5
Age and Acceptance of Fintech Services between Generation Z, Millennials and Generation X

Age	Never %	Rarely %	Sometimes %	Often %	Frequently %	Chi-Square	P-Value
15-25 Years	15	12	7	42	24	47.29	**0**
26-40 Years	20	7	11	40	22		
Above 40 Years	44	16	14	12	15		

Source: Own elaboration.

The Chi-square association test is used to investigate the relationship between acceptance of Fintech services and various age groups. It may be inferred that age has a substantial impact on Fintech service acceptance, since the null hypothesis is rejected at the 0.05 level of significance based on the chi-value of 47.29 and the P-value of less than 0.05, indicating a significant relationship between age and the adoption of Fintech services.

The necessity of banks entering the Fintech space initially is underscored by the existence of Millennials and Generation Z and their strong pressure to accept these services early on. These two generations are the main forces behind fintech and banks, pushing them to develop and adapt financial services to make them accessible through the most popular digital devices, especially smartphones. Meola (2017) said.

H_{04}: There is no relationship between income and embracing Fintech services

Fintechs and other ICT-driven projects hold great potential to contribute significantly to the reduction of economic inequality, especially in developing nations. They could give the underprivileged access to fresh income and jobs. Additionally, they are acting as catalysts for the advancement of tax collection, government services, good governance, and the reduction of corruption. (Aker and others, 2010)

It was discovered that using Fintech services and income were positively correlated. Research reveals that 47% of respondents with monthly incomes over 90,000 are regular users of Fintech services, whereas only 8% of respondents with monthly incomes under 30,000 regularly use digital financial products.

Most of these respondents were retailers and students. Furthermore, the null hypothesis was rejected, and it was discovered that there is a correlation between income and the use of technologically oriented financial services when a P value of 0.05 was used to evaluate the relationship between age and embracing Fintech. Improving the digital infrastructure is a feasible policy endeavour to reduce income inequality; hence, the government needs to prioritise creating a conducive environment for Fintech and financial aid to assist the poor.

Table 6
Monthly Income and Acceptance of Fintech Services

Monthly income	Never %	Rarely %	Sometimes %	Often %	Frequently %	Chi-Square	P-Value
Less than ₹ 30000	21	36	18	17	8	131.9	**0**
₹ 30001 - ₹ 60000	20	9	18	44	9		
₹ 60001 to ₹ 90000	9	7	15	48	21		
Above ₹ 90000	1	3	21	28	47		

Source: Own elaboration.

FINDINGS

It is anticipated that fintechs will upend the financial services industry in a similar way to how smartphones upended Kodak and Nokia. Opportunities in this field would arise from India's sizable underbanked and unbanked population. India is going in the right direction and is off to a good start. Fintech improves operational efficiency by successfully cutting operating costs, enabling strategic disintermediation, creating new entrepreneurial possibilities, and democratising access to financial services (Agarwal & Zhang 2020). India is still in the early stages of Fintech adoption, despite evidence that it is widely available and accepted in sophisticated economies like the US, China, and Japan (Chua et al., 2019). Moreover, the purpose of utilising Fintech is still widely unknown in India.

Fintech companies have become increasingly well-known in the payment industry. Still, there are five main obstacles to Fintech adoption in India: "low security (fraud messages, calls, etc.)" (mean value 3.92), "lack of technical know-how" (mean value 3.95), "regulatory and compliance laws" (mean value 3.87), "documentation and formalities" (mean value 3.74), and "emotional attachment to cash" (mean value 3.92).

Respondents from Generation Z, Millennials, and Generation X significantly emphasised three out of the twelve challenges identified. "Lack of awareness", "documentation and formalities", and "lack of technical know-how" are these problems. Millennials and Generation Z have invested extensively in technology, are aware of it, grew up as it developed, and have incorporated it into their daily lives, in contrast to Generation X. The bulk of Indians who live in cities employ these digital payment methods, yet over 70% of the country's population still calls rural areas home. India's rural areas are growing increasingly accustomed to using digital payment methods due to the widespread availability of cellphones and the internet. To promote comprehensive economic growth in rural India, the Fintech industry has to raise awareness.

According to research, men predominate in the tech sector and are more likely than women to accept financial services. In particular, in Fintech, where a strong technological background is necessary due to the nature of financial settlement, men possess a larger degree of technological experience. Males are also more driven than females to foster faith in the financial system, while the latter develop fear, disinterest, and unfavourable views towards money matters. Findings showed that, although just 27% of respondents aged 40 and over utilise Fintech, 62% of respondents aged 29 to 39 regularly use these services. The chi-square value of 47.29 and the P value of 0.05 indicate a substantial correlation between age and the adoption of Fintech services, which leads to the rejection of the null hypothesis at the significance level of 0.05. cc

Therefore, it can be concluded that the acceptance of Fintech services is significantly influenced by age. Innovative financial services are more likely to be used by the younger generation. The findings support the hypothesis put forth by Alalwan et al. (2015), which states that younger individuals are more likely to use new technologies because they are practical and efficient for conducting transactions. Moreover, younger customers are more tech-savvy, which leads to a respectable level of proficiency and understanding when it comes to using it.

The necessity for banks to expedite the adoption of Fintech services is underscored by the widespread and powerful influence that Generation Z and millennials exercise in adopting these services. These two generations are the main forces behind fintech and banks, pushing them to develop and adapt financial services to make them accessible through the most popular digital devices, especially smartphones. The results demonstrate that Millennials and Generation Z possess extensive knowledge of Fintech and are more motivated and willing to employ Fintech services.

Banks could gain a substantial portion of the unbanked population by using e-wallet services to open virtual accounts for this consumer base. To reach a larger target audience and offer essential services that meet their demands, the service must be easy to use and intuitive. Consequently, there may be a significant improvement in the banks' operational efficiency, competitiveness, sustainability, innovative quality, service creativity, and customer satisfaction levels.

To do this successfully, banks will need to make a significant effort to remove problems and barriers. Although fintech is still in its early phases in the banking sector, it is expected to change how financial goods and services are distributed soon. Fintech will make the financial services sector safer, more stable, and more diverse. Because fintech organisations are not as homogeneous as traditional banks, they provide excellent learning models for improving capabilities and culture.

CONCLUSIONS

Under the collective intelligence orchestration lenses. As pointed out by Kubus, López Domínguez, and De Santos (2025), orchestration of collective intelligence supports sustainable digital transformation because it aligns institutions, communities, and technology platforms. When talking about Fintech, such orchestration consists of government, financial organisations, instructors, and users cooperating to promote financial literacy. This dissonance prevents long-term financial stability and prosperity for all age brackets. The way ahead would require an integrated effort, a symphony in concert, between the government, financial institutions, educators, NGOs, and policymakers. We can develop a comprehensive financial literacy movement in India when we work together. This movement can empower individual people and families of any age to understand and manage money properly.

The implications of bridging this gap are far-reaching. From a policy standpoint, the government can establish a national financial literacy strategy, mandating financial education in schools and incentivising financial institutions to provide educational resources. Regulatory bodies can ensure financial products are transparent and consumer-friendly.

Programmatically, age-appropriate financial literacy initiatives are essential. These programs, delivered through workshops, online modules, mobile apps, and community outreach, can cater to the specific needs of each generation. Technology can be a powerful tool, making financial literacy education accessible and user-friendly, particularly for younger generations.

Financial institutions can play a proactive role by integrating financial literacy modules into onboarding processes and offering financial counseling services. Educational institutions can incorporate financial literacy education into the curriculum at all levels.

The societal implications are profound. Increased financial literacy empowers individuals to manage their finances responsibly, plan for retirement, and build a secure future. This, in turn, fosters greater financial inclusion, contributing to a more stable and prosperous Indian economy. Closing the inter-generational gap in financial literacy is more than a pedagogical objective; it is a well-calculated move towards building a society able to make informed financial decisions as an extension of the metaphor of an orchestrated symphony of collective intelligence. Working together" and "working strategically", we can engage all Indians to financial well-being and a brighter economic future.

Financial sector policies should prioritise the development of more accessible financial systems that provide direct assistance to the poor and unbanked by increasing access to appropriate financial services. Fintech can enable the underbanked demographic to become more economically integrated by resolving challenges with value storage and transfer.

The lack of understanding and utilisation of fintech services among bank clients of the older generation, housewives, and agriculturists is due to ignorance and misinterpretation. As a result, steps should be taken to raise customer knowledge and persuade them that such services are trustworthy because there is no other option, and technological integration is required. Fintech has the potential to improve financial literacy among younger generations.

Policies need to ensure that digital financial education is accessible to all and tailored to the needs of each generation. Policymakers need to be proactive in adapting to the changing landscape of Fintech to ensure that the benefits are maximised while the risks are mitigated. They need to tailor policies to the needs of each generation to ensure that Fintech benefits everyone, regardless of age or background. Fintech has opened up new avenues for accessing credit, particularly for younger generations who may not have a traditional credit history. Policies need to ensure that these platforms are well-regulated, transparent, and fair.

Fintech businesses must create and put into practice best practices in risk management, corporate governance, service quality, compliance culture, and employee engagement that have proven successful among the majority of Indian financial institutions' service providers. Indian Fintechs should differentiate themselves by focusing on their "core" offerings.

Successful Fintechs around the world have created their products in a specific area of focus. Policymakers should consider methods to broaden the regulatory landscape model so that it encompasses the RBI, IRDA, and SEBI, among others, and so enables a broader range of goods to be offered under one roof. In addition, India may look towards offering more handholding support to Fintechs and exploring ways to simplify the process for sandbox participants. Previously, policymakers aided Fintech growth by constructing world-class payment infrastructure.

Some initiatives have also been launched to foster collaboration between Fintechs and financial institutions. It is now time to extend this innovation agenda to additional Fintech segments by developing conducive policy frameworks. A broader scope of partnerships between financial institutions and Fintechs is also required. Finally, as Fintechs expand their capabilities and scale, they should begin to plan for international expansion by prioritising geographies and developing capabilities in specific markets.

LIMITATION

Although the findings are insightful, there are some limitations that are to be considered. Although the sample size of 278 was adequate for statistical analysis, the study was limited to certain areas in northern India. This regional restriction implies the overall representative nature of the data. What is more, random sampling may have omitted significant groups such as older people living in rural areas and people unaccustomed to digital financial tools. Although the survey focused on Fintech adoption, it is recognised that respondents may mix up Fintech services with digital banking services provided by a traditional bank. Considering the ongoing integration of Fintech platforms with established financial institutions, especially in a hybrid collaboration, the total separation of mindsets in consumers' eyes may not be achieved.

The dependence on self-reported statistics presents an opportunity to have response bias, i.e., social desirability and recall problems. Moreover, the cross-sectional nature of the study cannot allow for the following changes in the Fintech usage behaviour' s development. Longitudinal studies would be more suitable for understanding an evolving attitude, particularly with the fast-developing digital infrastructure in India.

Longitudinal approaches, which could be used in future studies, may be used to trace the changes in the adoption of Fintech. Combining qualitative methods such as interviews or focus groups would also allow for a deeper exploration of behavioural insights. A wider geographic sampling that includes the rural areas and Tier 2/ Tier 3 cities would enhance generalizability.

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Annexure I: Survey Questionnaire (English Translation)

Section A: Demographic Information

Please select the appropriate option for each question:

Gender:

□ Male □ Female □ Other

Age Group:

□ 15–25 years 26–40 years □ Above 40 years

Monthly Income (INR):

□ Less than ₹30,000 □ ₹30,001 – ₹60,000

□ ₹60,001 – ₹90,000 □ Above ₹90,000

Education Level:

□ Below 10th Standard □ 12th Standard

□ Graduate □ Postgraduate □ Illiterate

Occupation:

□ Student □ Private Sector Employee □ Government Employee

□ Self-employed □ Farmer □ Homemaker

□ Other (Please specify): _____

Section B: Perceived Barriers to Fintech Adoption

Please indicate your level of agreement with the following statements on a scale of 1 to 5: **(1 = Strongly Disagree, 5 = Strongly Agree)**

S. No	Statement	Rating (1–5)
1	I lack the technical knowledge to use Fintech services.	
2	I am concerned about the security of digital transactions.	
3	Regulatory and compliance procedures are too complex.	
4	Documentation requirements make it hard to use Fintech.	
5	I am emotionally attached to using cash over digital payments.	
6	I am not aware of how Fintech services work.	
7	I have experienced failed transactions while using Fintech.	
8	Poor internet connectivity affects my ability to use Fintech.	
9	I worry about the possibility of hacking or online fraud.	
10	Fintech services charge high service fees.	
11	Server issues often disrupt my Fintech transactions.	
12	I do not have a bank account to use Fintech services.	

Annexure II: Participant Consent Form
Participant Consent Statement

Dear Participant,

You are invited to participate in a research study titled: "Generational Perspectives on Fintech Adoption in India: Challenges, Demographics, and Digital Inclusion." The purpose of this study is to understand how individuals from different age groups perceive and use Fintech services in India.
Please note:
Participation is voluntary.
The survey will take approximately 10–15 minutes.
Your responses will be anonymous and kept confidential.
No personal identifiers will be collected.
You may skip any question or withdraw from the study at any time.
By proceeding with this questionnaire, you confirm that:
You have understood the nature and purpose of the study.
You agree to participate voluntarily.
You consent to the use of the anonymous data for academic research and publication.
Thank you for your participation.

Sincerely,
[Researcher's Name]
Doctoral Researcher
[University/Institution Name]
[Email Address]

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Integrating the Metaverse into Omnichannel Fashion Retail: Customer Journey

Integración del metaverso en el comercio minorista de moda omnicanal: recorrido del cliente

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ABSTRACT

The objective of this paper is to investigate how fashion brands incorporate metaverse retailing into their omnichannel strategies. To this end, the metaverse is conceptualised as a retail channel, and a real case was analysed using content analysis to examine its omnichannel integration into a leading fashion brand. Finally, we explore the opportunities, challenges, and implications of integrating the metaverse into omnichannel retail and its impact on the consumer journey. Our study reveals that, despite initial branding coherence and partially integrated product information on the metaverse, at present, there is no genuine integration of these platforms within omnichannel retail strategies. Metaverse channel currently functions in isolation from established e-commerce touchpoints, yielding disjointed customer journeys.

Keywords: Metaverse Retailing, Omnichannel Strategy, Fashion Industry, Customer Experience, Digital Transformation

Jel Code: M31

RESUMEN

El objetivo de este artículo es analizar cómo las marcas de moda están incorporando el comercio minorista en el metaverso dentro de su estrategia omnicanal. Para ello, se conceptualiza el metaverso como un canal minorista y se aplicó un análisis de contenido a un caso real, con el fin de examinar su integración omnicanal por parte de una marca de moda líder en este entorno. Finalmente, se abordan las oportunidades, desafíos e implicaciones de esta integración, así como su impacto en el customer journey. Nuestro estudio revela que, pese a las incursiones iniciales orientadas a la coherencia de marca e integración parcial de la información de producto, no existe aún una integración genuina. La desvinculación del metaverso de los canales físicos y digitales consolidados genera su aislamiento funcional dentro del customer journey map.

Palabras clave: Comercio minorista en el metaverso, estrategia omnicanal, industria de la moda, experiencia del cliente, transformación digital.

Código JEL: M31

INTRODUCTION

Five sectors have already begun leveraging the metaverse—namely & apparel, fashion, and luxury; consumer packaged goods; financial services; retail; and telecommunications, media, and technology (McKinsey & Company, 2022; Crespo-Pereira et al., 2023).

Metaverse function as strategic an asset for fashion houses by opening innovative avenues to capture nascent market segments, convey brand positioning, test virtual retail environments, and diversify revenue sources—while simultaneously reinforcing brand image and reputation, particularly for companies with substantial brand equity (Park & Lim, 2023; Dwivedi et al., 2023; Dwivedi et al., 2022; Kalbaska & Cantoni, 2019).

The economic incentives for the fashion industry retail are clear. According to Bloomberg Intelligence, the market opportunity for the metaverse was predicted to reach USD 800 billion by 2024 (Dwivedi et al., 2022).

The gaming-skins market alone reached approximately USD 40 billion in 2020, and platform transformations could position the metaverse as fashion's most significant growth frontier since the advent of e-commerce (McKinsey & Company, 2022). In consequence, the retail landscape is undergoing a profound transformation as the metaverse emerges as a new touchpoint that reshapes traditional business models and the marketing mix. Over ten years ago, metaverse retailing was envisioned as the next phase of e-commerce, shifting the emphasis from product-centric to customer- and experience-driven approaches (Dwivedi et al., 2022).

The metaverse has emerged as a strategic omnichannel touchpoint (Alexander et al., 2024), transcending mere channel proliferation to facilitate seamless customer–brand–channel interactions across both digital and physical realms (Verhoef et al., 2015). Omnichannel marketing offers organisations enhanced opportunities to engage customers across multiple synchronised distribution channels, enabling more efficient use of all available touchpoints.

Despite this early projection, metaverse retail remains in its infancy, and the field's future trajectory is still unclear, as evidenced by the many unresolved questions (Dwivedi et al., 2022). Research remains scarce and largely conceptual (Barrera & Shah, 2023; Kumar et al., 2024). To the best of our knowledge, the literature lacks understanding of how brands integrate the metaverse into omnichannel strategies, making it imperative to elucidate how they leverage this channel to engage the unique, young, tech-savvy consumer segment.

OMNICHANNEL INTEGRATION IN FASHION RETAIL

Three core metaverse-driven brand strategies are possible in the fashion industry: (1) leveraging non-fungible tokens (NFTs); (2) utilising immersive technologies (Virtual Reality/Augmented Reality); and (3) embedding brand experiences in virtual worlds and games (Park & Lim, 2023).

Brands may develop proprietary virtual platforms (branded virtual worlds) where firms can communicate and distribute branded fashion skins as end-products (Chan et al., 2024). Russo et al. (2024) delineate two primary categories for virtual assets: non-fungible tokens (NFTs) and virtual garments or other digital goods.

NFTs are unique blockchain-based assets in decentralised metaverses, ensuring ownership, provenance, and authenticity of virtual or physical items (Russo et al., 2024). Consumers acquire fashion NFTs by converting currency to cryptocurrency and buying them on specialised marketplaces (Chan et al., 2024). Conversely, digital assets reside within centralised metaverse platforms and lack blockchain support (JPMorgan, 2022). This is the case of Vans' World, whose branded virtual space offers digital garments and other goods.

Virtual assets may have physical counterparts, known as digital twins. A notable case is Balenciaga. Balenciaga's collaboration with Fortnite showcased an innovative approach to fashion retail, in which digital outfits were first released within the game and later produced as limited-edition physical garments (Kniazeva et al., 2023). Consequently, the metaverse serves as a marketing channel generating new revenue via virtual skin sales. Still, metaverse-based sales represent only a small fraction of overall e-commerce revenues (Dwivedi et al., 2022).

Exploration of Omnichannel Distribution and the Role of the Metaverse

Omnichannel refers to the integration of all the channels a company has at its disposal (Akter et al., 2021). Channel integration is a fundamental component of omnichannel retailing, referring to the extent to which a company aligns the objectives, design, and deployment of its channels to generate synergies for the organisation and deliver specific advantages to its customers (Cao & Li, 2015).

Omnichannel distribution underscores the need for seamless coordination among multiple distribution and communication channels to ensure that customers perceive a unified value proposition regardless of whether they interact via web, mobile app, social media, in-store or metaverse. This concept reflects a company's initiatives to foster tight coordination across its various channels, resulting in seamless operations. Consequently, channel integration is

considered essential for effectively serving customers who utilise omnichannel services (Lee, 2020).

Scholars characterise channel integration as a six-dimensional construct: integrated promotion, integrated product and pricing, integrated transaction information, integrated information access, integrated order fulfilment, and integrated customer service (Oh & Teo, 2010; Lee, 2020; Gao et al., 2021) (Table 1).

Table 1

Omnichannel strategy. Typology of integration

Integration Type	Description/Definition
Integrated Promotion	Refers to the consistency and coherence of advertising and promotional information (including advertisements, campaigns, logos, and slogans) across all company's channels. In this way, promotional content encountered in a physical store enhances awareness of the company's digital channels, and vice versa.
Integrated Product and Price	Denotes the provision of identical and synchronized information regarding product categories, detailed descriptions, and pricing across all customer touchpoints. Thus, customers receive uniform product and price data regardless of the channel they use, enhancing information accuracy and reducing confusion. This consistency is crucial for maintaining brand integrity and customer trust.
Integrated Transaction Information	Ensures that customer transaction information is collected and synthesized across various channels. This approach treats each customer as the same individual across different touchpoints, allowing for convenient management of purchase records and tailored recommendations based on personal preferences, shopping history, and purchase patterns.
Integrated Information Access	Refers to the extent to which customers can access information about one channel (e.g., product availability, inventory status) from another channel. This integration allows customers to browse an offline store's products and inventory status from its online store and vice versa, enhancing the overall customer experience by providing easy access to comprehensive information.
Integrated Order Fulfillment	Represents a company's ability to complete a transaction process, including order, payment, and delivery, via any one or more channels. For example, customers can buy a product online and pick it up. This integration promotes transaction convenience and customer satisfaction.
Integrated Customer Service	Involves providing standard, consistent service support via one channel for products purchased through another channel. Customers can return or repair products bought online at offline stores and receive after-sales support online for offline purchases.

Source: Own elaboration (Oh & Teo, 2010; Gao et al., 2021).

The first three dimensions are information-oriented services that benefit customers by gathering, processing, analysing, and transmitting data to generate value for customers. They deliver functional, utilitarian value and lessen cognitive load (Gao et al., 2021). These dimensions enhance information quality (relevance, accuracy, and completeness) and decision-making efficiency, reduce effort and data accuracy. (Oh & Teo, 2010)

The latter three dimensions—integrated information access, order fulfilment, and customer service—are high-customer-contact integrations, entailing close, interpersonal interactions with service personnel. These dimensions increase service convenience (Oh & Teo, 2010) and impact positively on the affective component of the customer experience (e.g., enjoyment, pleasure, perceived trustworthiness) due to the interpersonal interactions and convenience they afford, while still contributing positively—albeit to a lesser degree—to the cognitive dimension (Gao et al., 2021).

MATERIALS AND METHODS

This study adopts a qualitative, single-case design to explore how a selected brand integrates its metaverse touchpoint into an omnichannel strategy. A case study is warranted because it allows direct immersion in a branded virtual world (metaverse), enabling observation of marketing behaviours that are not discernible through secondary data alone.

The selected brand was chosen based on its well-documented active presence in the metaverse. SanMiguel et al. (2024) and Dwivedi et al. (2022) identified Vans as one of the most technologically sophisticated and well-funded virtual worlds. Thus, the primary unit of analysis was Vans' World on the centralised metaverse Roblox.

To determine whether and how the metaverse functions as an integrated channel, observations were coded against an established channel-integration framework. Each dimension was operationally defined based on Oh and Teo (2010) and Gao et al. (2021). A detailed codebook defined each code and provided decision rules. Coded data were then aggregated to identify which integration dimensions were present in the metaverse environment and compared against the brand's website.

Access to the metaverse was obtained by creating an account and logging into the specified platform with a standardised avatar. The observation period, spanning June 2024 to May 2025, enabled an in-depth examination of the evolution of platform integration as a marketing and communication touchpoint. Field-note templates were used to record observations, accompanied by screenshots.

Vans' World description

Contemporary brands have been criticised for persisting with transactional approaches that fail to meet evolving experiential expectations (Langer, 2020). Roblox, a centralised metaverse, operates under a Free-to-Play (F2P) model—open, cost-free, and easily reachable via PC or mobile—which enables brands to create their virtual worlds to attract large audiences and foster positive user–brand relationships.

Van's World is a branded virtual world hosted on the Roblox platform, which opens an innovative avenue to contact new market segments. To date, the Vans' metaverse has achieved more than 120 million visits (Table 2). Among the top 30 branded metaverse experiences on Roblox for January–February 2023, Vans is ranked twenty-first (MaxPower Gaming, 2023). By integrating gameplay and commerce, Vans' World's users can play with third parties as well as navigate a curated selection of digital garments, engage in virtual try-on sessions (where permitted), and acquire fashion skins.

Table 2

Roblox's statistics (updated 09/06/2025)

	Visits	Upvotes	Downvotes	Rating	Favorites	Average playtime
Vans	123.998.750	245.247	24.990	90,75%	652.889	4.79 Minutes

Source: Rolimons (n.d.).

Integrated promotion

Notably, the metaverse enhances its utilitarian value by serving as a marketing communication channel in which to inform and educate users on the brand identity and positioning (Table 3). The challenge for brands is not only to adopt multiple touchpoints in the omnichannel strategy, but to manage them in such a way that the consumer perceives a consistent brand narrative, fully aligned with the firm's core values (Lemon & Verhoef, 2016).

Metaverse enable brands to build their positioning within a new virtual context (Dwivedi et al., 2022). The principal challenge in brand management is to strike an optimal balance between heritage imagery versus contemporary visuals (Keller, 2009). Consequently, brands must navigate the challenge of integrating strategic identity cues into these virtual environments without compromising their aspirational appeal or established market positioning.

DATA ANALYSIS

The analysis reveals consistent branding elements in the metaverse and the website—logo, slogan, and colour palette. Interestingly, there is a strong presence of heritage cues in Vans' World. Vans' brand heritage is vividly expressed through the iconic checkerboard motif and signature colour palette on the atmospheres and classic products. Introduced in the late 1970s, the black-and-white checkerboard pattern quickly became synonymous with Vans' commitment to skate culture and authenticity.

Heritage brands such as Vans often draw on a storied history, rich legacy, and curated experiences that longtime customers deeply appreciate. However, these traditional cues may hold less relevance for younger or prospective consumers, who tend to evaluate brands through a more modern, forward-looking lens.

By immersing users in lifestyle narratives focused on alternative sports (skateboarding as a cornerstone of authenticity and longevity, youthfulness, and freedom, the platform not only educates visitors on product application but also reinforces Vans' core brand positioning. The brand identity is also constructed around principles of exclusivity and rarity (to be analysed next).

The analysis revealed little promotional integration of the metaverse within the omnichannel strategy. The observation period was June 2024–May 2025. Our study found no evidence of reciprocal promotional integration between the metaverse and the brand's online channel. There were no digital or search-engine advertisements directing traffic to the virtual environment, no in-world elements linking users back to the website or highlighting web-based sales and events, and no website links or mentions encouraging visits to the metaverse or promoting in-world offers. Consequently, the metaverse channel remains siloed from the brand's broader omnichannel strategy, with neither the web nor the virtual world leveraged to drive traffic or cross-promote initiatives.

Table 3
Integrated promotion analysis

Integrated Promotion	Summarize instances	Synthesis
Consistent Branding	The Vans brand name and logo appear unaltered throughout the virtual store and in its surrounding streets .• Vans's corporate red colour is used continuously in the store and adjacent virtual areas. • The Vans logo is displayed on in-world products (e.g., backpacks) and virtual stores. • The Vans checkerboard pattern appears on in-game accessories (e.g., skateboards), on building façades, and on a bus shelter canopy. • The slogan "Vans Off The Wall" appears on a billboard in a virtual street.	These findings demonstrate a high degree of branding consistency: Vans's visual identity—logo, color palette, checkerboard pattern, and slogan—is faithfully replicated throughout the virtual environment, mirroring the brand's website. This uniformity reinforces brand recognition and suggests deliberate integration of metaverse promotional assets with Vans's overall omnichannel strategy.
Advertising the metaverse	• No Google SEM ads appear related to the brand's virtual assets nor virtual world when searching "Vans."	There is no evidence of digital advertising during the observation period. The absence of search-engine advertising suggests the brand did not leverage this channel to drive traffic to its metaverse.
Metaverse highlights the web	• No virtual brochures or digital pamphlets in the virtual space reference the brand's website. • No virtual shopping bags or packaging display website information.	There is no evidence that the virtual environment directs users to the website. The absence of any in-world promotional elements referencing the site indicates that this metaverse channel is not

	• No virtual posters or flyers highlight website offerings	leveraged to drive traffic back to the brand's online platform.
Metaverse Highlights web store promotion	Not found. • No in-world banner or slider stating, "This weekend only: 50% off in our website store." • No pop-ups, screens, or digital signage in the virtual world drawing attention to current website promotions.	There is no evidence that the virtual environment promotes any website-based sales or events. The absence of in-world references suggests this metaverse channel does not highlight or drive traffic to website promotions.
Web highlights the metaverse	Not found. • No web item explicitly mentions or advertises Vans' metaverse. • No homepage banner or navigation link directs users to a virtual world entry point.	There is no evidence that the website encourages users to visit the metaverse. The absence of any web-based links or mentions indicates the virtual channel is not integrated into the online strategy.
Web highlights promotions in the metaverse	Not found. • No homepage slider or banner referencing virtual asset sales (e.g., "Virtual asset 50% off"). • No pop-ups nor posts mention metaverse events or in-world discounts.	There is no evidence that the website promotes any metaverse-based promotions. The absence of virtual world offers on the site indicates that this channel does not highlight in-world sales or events.

Source: Own elaboration.

Product and price integration

Product characteristics—such as visual appeal, creativity, and customisation—constitute aspects of relevant consumer value significant for digital fashion (Venturini & Columbano, 2023). In the context of fashion, aesthetic value is particularly salient in driving consumption (Sheng, 2023).

The distinctive features of virtual collections can educate users about real-world offerings (Wongkitrungrueng & Suprawan, 2023). Integrating product and price information (Table 4)—offering consistent details on product categories, descriptions, and pricing across all organisational touchpoints—minimises customer confusion and streamlines the purchasing process by obviating cross-channel comparisons (Gao et al., 2021). This integration not only maximises the utilitarian benefits of an omnichannel strategy but also strengthens consumers' cognitive processing during decision-making (Dennis et al., 2014).

The metaverse operates as a complementary channel (rather than an integrated channel to the website) by offering exclusive digital-only assets that avoid the cannibalisation of other sales channels. Additionally, the metaverse supports "digital twins"—virtual replicas of real-world products.

Metaverse enables personalisation options. Personalisation refers to the consumer's ability to make specific aesthetic choices—such as selecting colour, cut, sizing, or other design elements (Moreau et al., 2020)—resulting in unique items created exclusively for the individual. In June 2024, users could virtually "try on" and customise the virtual assets of Vans' Classic line models: Authentic model, Slip-on model, Old Skool model and SK8-HI

model. This personalised shopping journey positioned the metaverse as an intermediary between traditional online and offline retail.

Although customisation positively influences purchase intention, implementing this option presents a significant challenge for brands in the virtual environment. Brands must balance personalised offerings with the preservation of their creative identity, which underpins brand equity (Moreau et al., 2020).

Van's product lineup features classic, retro models that evoke its heritage, and notably, these designs could be customised by consumers in both physical and virtual formats in June 2024. In earlier iterations of the virtual storefront, users could modify this model via a suite of intuitive online tools and a predefined palette of options (the same as in the webpage at that moment)—an offering that underscored Vans' pioneering role in personalised footwear.

However, by the fourth quarter of 2024, these capabilities had been withdrawn: users can no longer experiment with fashion skins (no free-try on) nor tailor or customise their virtual sneakers. Conversely, different product lines are offered in the metaverse (classic, apparel, shoes, accessories). Notably, product information to date in the metaverse is primarily conveyed through aesthetic attributes such as design, colour and, in some specific products, textures.

Over the past year, the level of three-dimensional realism in Van's virtual retail environments has varied widely. Items intended to captivate users—most prominently Vans' sneakers—consistently feature the most advanced high-resolution 3D textures and full 360° renderings. This rigorous focus on visual fidelity not only deepens user immersion but also underscores the brand's dedication to showcasing its latest offerings or hero products.

Nowadays, Vans enables users to obtain specific models like the Mixxa shoe (2000s style) within its virtual version launch before their release in the physical market, as stated in the Vans World platform description. No explicit information about product real-world analogues was found. Interestingly, Vans only sporadically incorporates some detailed real-world product specifications into its virtual skin descriptions.

For example, a virtual white zip-up hoodie is described as "Stay warm and look great with the Vans White Vans Classic full-zip hoodie," mirroring the type of functional benefit that can be found on physical products. Moreover, the firm informs about both quantitative limits (restricted unit counts) and temporal constraints (limited time) on virtual products, cultivating a sense of exclusivity, scarcity, and urgency that amplifies the brand's perceived value and stimulates consumer interest and desire (Lehdonvirta, 2009).

Pricing in the metaverse introduces further complexity. Each platform (i.e. Roblox) has its in-game currency. Virtual fashion items are obtained either through purchases, priced in alternative currencies (such as Robux), or by completing in-game missions. For a relatively low fee—often one dollar or less—consumers can purchase branded digital skins, including exclusive items they might not afford in the physical market, making these offerings highly accessible and appealing to a broad player base (Venturini & Columbano, 2023; Wongkitrungrueng & Suprawan, 2023).

Micro-transactions constitute a fundamental strategy for enhancing utilitarian value within the metaverse (Venturini & Columbano, 2023) and elicit pleasure and satisfaction among consumers (Park & Lim, 2023). However, due to the low-price policy, virtual environments lack consistent pricing information for corresponding physical products. It is therefore essential to investigate how such reduced prices in virtual fashion influence brand perception.

Table 4

Integrated product and price

Integrated Product and price	Summarize instances	Synthesis
Product Description Consistency metaverse	• Information of design, colour and textures of virtual replicas found on the website. •Occasional tangible product information of virtual products. •No lists of identical fabric composition details to those shown on the brand's website nor physical product's measurements.	Earlier (Q3 2024), Vans' virtual iterations of its classic lines closely mirrored their physical counterparts—displaying identical design details, colour options, and customization elements as found on the website. Today, however, the platform's offerings combine wholly new, digitally native collections and Vans' retro and classic products with no custom options.
Stock Availability Consistency	• Not found availability status (in stock/out of stock) displayed within the virtual world.	Our analysis found no evidence of stock-level integration, indicating a complete absence of synchronized stock availability information between the metaverse and the brand's online store. Yet, virtual worlds offer stock information about virtual skins.
Cross Channel Purchase Recommendations	• Not found personalized product suggestions offered in the virtual world using data from both virtual world and website purchases.	No instances were identified of in-world recommendation features leveraging both avatar and website purchase data. Brands have yet to implement unified recommendation mechanisms across their virtual and web channels.
Price Consistency	• No correspondence was detected in either the price or the currency between the virtual environment and the website.	There is an obvious price discrepancy between the online and virtual offerings. Despite converting currencies at the prevailing exchange rate, the prices remained unmatched, confirming inconsistent pricing across channels for digital twins.

Source: Own elaboration.

Integrated transaction, Integrated information access, Integrated customer service, Integrated order fulfilment

Vans' metaverse environment disclosed a lack of integration with the brand's website—and vice versa. Specifically, metaverse and website purchase histories remain siloed; recommendation engines do not synchronsze; search and stock-check functions in the metaverse do not surface real-time website availability. The website offers no access to metaverse catalogues or promotions; virtual coupons cannot be redeemed online, and no returns for website orders can be initiated in-world. The website's support portal excludes virtual-world purchases, and there is no live-chat connection to in-world customer-service avatars. In sum, the metaverse and web environments operate as isolated silos concerning all tested forms of transactional and service integration. This result is consistent with Akter et al. (2021), who point out that the metaverse is not capable of offering personalised offers, location-based promotions, or one-to-one communication (Akter et al., 2021).

The metaverse in the customer journey map

Omnichannel marketing encompasses every customer touchpoint across the organisation (Verhoef et al.,2015), which should be employed to guide the customer journey (Alexander et al., 2024). Brands need to reassess and refine their consumer personas and customer journey mappings to accurately capture the novel interaction dynamics that emerge when physical and virtual environments converge (Dwivedi et al., 2023).

The metaverse is increasingly recognised as an initial stage in the customer journey, particularly for product awareness. The metaverse exerts its greatest influence during the pre-purchase phase of the customer journey—serving as a research hub, information source, and novel brand touchpoint by situating products in immersive, interactive environments. Consistent with earlier studies, the metaverse offers a novel, highly engaging touchpoint during the brand-awareness stage (Gao et al., 2021; Alexander et al., 2024).

This trend is also consistent with social media as a retail channel. Even though transactions on social media remain infrequent, they mainly serve as a discovery channel and still influence the purchasing decisions of younger segments (Juárez, 2025). While virtual worlds serve as significant touchpoints for a niche market, prompting users to explore physical products based on their virtual representations, emerging research is being done to understand their impact on the transactional stage.

Pioneer research states that although the Web 3.0 approach to the metaverse effectively engages consumers in earlier stages, their influence diminishes at the point of transaction (Harrisson-Boudreau et al., 2023; Alexander et al., 2025). Factors such as cryptocurrency

complexity, opaque pricing structures, purchase friction, and limited sensory immersion inhibit actual purchases (Alexander et al., 2025).

Conversely, in gaming-centric virtual environments, perceived enjoyment (fun) of the environment has been identified as a significant predictor of purchase intention (Guo & Barnes, 2009). In this regard, customisation becomes a critical determinant of purchase intention within virtual environments. The degree of enjoyment experienced in the virtual world and the ability to personalise avatars serve to enhance consumers' propensity to buy virtual products (Bleize & Antheunis, 2017). Interestingly, consumers who value tailored offers and feel a strong connection with a brand are more inclined to make purchases within the metaverse (Harrisson-Boudreau et al., 2023).

Although sales within the metaverse remain infrequent, virtual experiences can drive traffic to physical stores and e-commerce sites, suggesting a spillover effect that enriches omnichannel engagement. Metaverse resurges modestly post-purchase through community engagement and behavioural intent (Alexander et al., 2025).

Recent studies are exploring how the metaverse can function effectively as a sales channel for real-world products. Empirical studies across sectors demonstrate that positive virtual experiences reliably influence analogous real-world behaviours. Active engagement with brands in the metaverse consistently predicts stronger real-world purchases. Consumers bring their real-world needs and preferences into virtual environments; satisfying those needs virtually can translate into real-world purchases (Payal et al., 2024).

Although technology can enhance product awareness, its actual limited adoption (Dwivedi et al., 2022) may constrain its influence on consumer cognition. Metaverse leverages features such as digital-garment try-ons and digital twins. To capitalise on these dynamics, retailers should prioritise pre-purchase metaverse initiatives—such as creating digital twins of physical products and exclusive virtual skins—while addressing technical barriers to enhance immersion and seamlessness, thereby unlocking the metaverse's full potential as a complementary retail channel (Alexander et al., 2025).

The metaverse represents an ever-evolving paradigm driven by emerging technologies that enables users to encounter and explore items in contextually rich settings rather than through static images or text alone. Metaverse involves a range of advanced systems—such as 5G/6G connectivity, brain–computer interfaces, artificial intelligence (AI), computer vision, natural language processing, intelligent voice interfaces, virtual reality (VR), augmented reality (AR), and mixed reality (MR) (Wang et al., 2021).

Through the use of VR, AR, and MR technologies, head-mounted displays, haptic gloves, and motion trackers, virtual worlds enable hybrid experiences in which consumers can interact in innovative ways with brands and products using virtual reality (Flavián et al., 2019; Dwivedi et al., 2022). These technologies enhance consumer fashion experiences through virtual fitting rooms and immersive store and product simulations that engage multiple sensory channels and leverage embodied cognition.

The metaverse: opportunities and challenges

Fashion brands—ranging from luxury houses to fast fashion brands—have assumed a pioneering role on the metaverse as a retail channel (Kniazeva et al., 2023; Dwivedi et al., 2023). The metaverse presents a compelling opportunity for omnichannel distribution by effectively extending retailers' physical footprints into boundless digital realms. Retailers can establish virtual storefronts in which their complete product assortments are on display without spatial restrictions. Concurrently, consumers are poised to purchase entirely new categories of digital goods, from avatar apparel to coordinated digital twin collections, thereby unlocking unique commercial opportunities exclusive to the metaverse (Dwivedi et al., 2023).

The rise of digital assets creates an entirely new revenue stream. Also, luxury and mass market brands can capitalise on consumers' willingness to pay premium prices for exclusive virtual goods (Sheng, 2023). Beyond transactional benefits, the metaverse infrastructure will accelerate low-cost concept testing, prototyping, and A/B experiments, enabling rapid product development (Rauschnabel et al., 2022; Dwivedi et al., 2022).

The metaverse can potentially offer richer, more valid consumer data through immersive interactions (Crespo-Pereira & Sánchez-Amboage, 2024). The behavioural data generated from in-world navigation to avatar customisation choices and virtual purchase histories—empowers retailers to optimise touchpoints through data-driven personalisation, ensuring that recommendations, store layouts, and promotional activities resonate across both virtual and physical channels (Dwivedi et al., 2022).

Integrating the metaverse into an omnichannel distribution strategy presents a host of technical and social challenges. Complex transactional workflows within the metaverse present a significant obstacle to its adoption as a viable retail channel (Alexander et al., 2024). Accurate 3D product representation remains a technical hurdle as well, since texture, fit, and scale must be rendered convincingly to maintain consumer trust (Dwivedi et al., 2022).

The metaverse coexists with both online and offline channels; the choice of channel is contingent upon the consumer's motivation (hedonic, utilitarian, symbolic). Within the metaverse, value co-creation plays a central role, emerging not only through interactions

between retailers and consumers but also between consumers and the underlying technology. Users can co-create value in the metaverse through unique designs and experiences that enrich the ecosystem. Future research should assess the extent to which the metaverse addresses diverse consumer needs (Dwivedi et al., 2022).

Retailers must also reconcile uncertain business models. The dominant technology providers wield outsized influence over platform governance, data policies, and community norms, raising trust concerns for retailers who must safeguard customer privacy and ensure fair competitive conditions (Dwivedi et al., 2022; JP Morgan, 2022).

An extensive collection of biometric and behavioural data creates heightened privacy and security risks (Crespo-Pereira & Sánchez-Amboage, 2024). The fragmentation of virtual environments and the absence of common technical standards are challenges. Unlike the open protocols that underpin the web, multiple metaverse platforms each adopt proprietary architectures and commercial rules, forcing retailers to choose which ecosystems to support and complicating seamless interoperability across channels.

These platforms can demand specialised hardware—VR headsets, AR devices, high-bandwidth connectivity—that many consumers may lack, creating a "channel overhead" that risks excluding segments of the audience and driving them back to conventional web or brick-and-mortar outlets (Dwivedi et al., 2022). To note, a key critique of the metaverse's inability to fulfil early expectations is the notion that its existence is synonymous with VR, AR, and MR usage (Dwivedi et al., 2022). However, the metaverse is also accessible through personal computers.

Personalisation in virtual spaces also proves technically and operationally complex. Unlike one-to-one web sessions, metaverse storefronts may host numerous avatars simultaneously, each with unique preferences; dynamically tailoring environments, recommendation engines, and layouts in real time requires sophisticated load-balancing and orchestration strategies. Identity management further complicates matters: avatars can freely alter appearance and behaviour, obscuring genuine consumer intent and challenging the construction of reliable user profiles for targeted marketing. Additionally, unmoderated social interactions—ranging from harmless trolling to more serious harassment—threaten brand reputation and user well-being when governance frameworks are immature (Dwivedi et al., 2022).

Branded chatbots and virtual avatars will enhance customer support in immersive metaverse environments by acting as AI-powered agents—ranging from automated assistants to sponsored influencers—that learn and adapt through ongoing consumer interactions. This shift will move many touchpoints from human to AI representation, allowing avatars to receive personalised guidance, virtually try products (e.g., clothing), and fuse the benefits of

online convenience with in-store realism (Rauschnabel et al., 2022; Dwivedi et al., 2022). However, the deployment of AI agents also carries the potential for harmful behaviours, underscoring the need for robust moderation mechanisms (Dwivedi et al., 2022).

CONCLUSIONS

Brands must assess whether the metaverse represents a strategic communication and marketing channel and, if so, delineate its role within their overarching omnichannel framework. Our findings underscore that the metaverse integration into omnichannel strategies remains markedly underexplored, resulting in largely incongruent experiences across the customer journeys. This aligns with previous research indicating that, at present, companies predominantly manage their content and activities through a multichannel approach (Ramadan, 2023).

Brands have begun to leverage metaverse environments for information-based services—thereby enhancing consumer cognition and bolstering brand and product awareness—full omnichannel integration is yet to be developed. Preliminary steps have been undertaken to partially integrate information-oriented service dimensions (i.e. partial promotion integration and product integration). These dimensions deliver functional, utilitarian value, which at the same time enhances the cognitive aspect of the customer experience (e.g., decision-making efficiency, reduced effort, data accuracy) (Gao et al., 2021).

Beyond its aesthetic function, embedding customisation mechanisms into products delivers significant perceived benefits for users and brands. Fashion serves as a communicative instrument. Personalisation empowers consumers to express themselves following their preferences and tastes (Mogaji et al., 2023) and engage in unique experiences that enhance emotional value and affective responses (Venturini & Columbano, 2023; Bleize & Antheunis, 2017). Consequently, determining the appropriate limits on product variety and user customisation within virtual environments is essential, considering these observed user benefits and potential impact on the different stages of the customer journey.

Vans' World evidences a lack of cross-platform information, transactions and consumer-contact integration. The platform does not provide essential IRL product details, nor does it effectively link virtual retailers with real e-commerce. Although the metaverse operates as a virtual storefront, it lacks brand-specific assistant avatars to guide users.

This limitation restricts its functionality to merely showcasing product models rather than facilitating a comprehensive omnichannel shopping experience. To note, these dimensions increase service convenience and impact positively on the affective component of the

customer experience (e.g., enjoyment, pleasure, perceived trustworthiness) and contribute positively—albeit to a lesser degree—to the cognitive dimension (Gao et al., 2021).

By focusing specifically on the fashion industry, the study provides a foundation for future research and practice, as brands seek to realise the full potential of metaverse platforms in creating seamless, immersive shopping experiences. Limitations include the single-case scope—findings represent a snapshot in time and may not generalise to other brands or platforms.

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FINANCIAL AND ECONOMIC INDICATORS

ROIC (Return on Invested Capital), as a metric of financial efficiency

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Organisations generally invest capital in acquiring industrial warehouses, machinery, research laboratories, offices, and other similar long-lived assets, as well as hiring personnel to manage, oversee the production process, and make purchases of raw materials, while also extending credit to their customers. Shareholders can provide financial resources through capital exhibitions, the generation and retention of profits or through the contracting of debt.

Assessing the return on capital invested in tangible and intangible resources is often complicated. ROIC is a financial metric that helps evaluate the return on capital invested by a company. (Damodaran, 2008). When seeking to measure the efficiency of capital invested, if the ROIC exceeds the cost of capital, the company is generating value.

ROIC is a key profitability metric in corporate finance that measures a company's efficiency in allocating its capital to profitable investments. ROI has been widely used in the financial literature by renowned researchers, advisors, and professionals, including Ben-David, Graham, and Harvey (2013); Furman and Orszag (2015); Koller (1994); and Koller, Goedhart, and Wessels (2017). In addition, Wall Street analysts have declared and promoted ROIC as the most crucial metric in finance (Benoit, 2016), catalogued as a key factor in capital allocation.

ROIC Advantage

The advantage of ROIC is that it measures investment capital as something more than physical capital (fixed assets and investments); research conducted by Doidge et al. (2018) shows that, over time, investment in total assets decreases in relation to investment in intangible assets. In addition, unlike traditional measures, ROIC examines the return on total capital invested and clearly shows whether a company is creating value for its shareholders.

In the evaluation of financial profitability, most traditional measures such as return on equity (ROE) and return on assets (ROA) are considered, which have limitations when measuring the value generated by companies in the long term from equity, these ratios have limitations when measuring the value generated by companies in the long term from equity These

indicators take into account the net profits of the income statement and the balance sheet, but do not report on the total capital invested.

Calculation of ROIC

In the article "Return on Invested Capital: How to Calculate ROIC and Handle Common Issues", written by Michael J. Mauboussin and Dan Callahan, the terms of ROIC are defined and explained in a clear and precise way. They also show that this metric is calculated with the following formula:

$$\text{Return on invested capital (ROIC)} = \frac{\text{Net operating profit after taxes (NOPAT)}}{\text{Invested capital (IC)}}$$

NOPAT = EBITA – cash taxes

Earnings Before Interest and Taxes (EBIT)* (1-Taxes) represents Net Operating Profit After Taxes (NOPAT), but before the financing cost income generated by investments made in operations. Therefore, the NOPAT is the return generated by the capital invested.

The authors state that understanding how a company generates its returns can guide the assessment of its sustainability, and knowing how a company generates an attractive ROIC can inform the analysis of its competitive strategy. The origin of the returns and the rationale of the plan were provided by breaking down the previous formula into NOPAT Margin and Turnover of Invested Capital.

$$\text{ROIC} = \frac{\text{NOPAT}}{\text{Invested Capital (IC)}} = \frac{\text{NOPAT}}{\text{SALES}} = \frac{\text{SALES}}{\text{Invested Capital (IC)}}$$

Interpretation

Return on invested capital (ROIC) is typically used with two approaches:

1. Investments. In making asset allocation decisions. If different investment opportunities carry the same risk, the company should always invest in the proposition that offers the highest ROIC.
2. ROIC Vs WACC. When comparing the ROIC with the Weighted Average Cost of Capital (WACC) of the investment. If the return on the ROIC exceeds the expected return (WACC), the investment should be made.
3. Valuation multiples. If two companies are similar, but one has a higher ROIC, the company with a higher ROIC should, in theory, trade at higher valuation multiples, for example: (Share Price / Earnings Per Share) = P/E; (Total Enterprise Value)/(Earnings before interest, taxes, depreciation, and amortisation) = TEV /EBITDA, etc.

Proposals

In decision-making, the following is suggested:

a) If a company achieves a high ROIC thanks to a high NOPAT margin, the analysis should focus on differentiation.
b) If the company's high performance comes from a high turnover rate of invested capital, it is essential to analyse cost leadership.

Few companies have high NOPAT margins and high turnover rates of invested capital. Generally, these companies have advantages reinforced by economies of scale. Economic and financial indicators are helpful tools that benefit organisations by facilitating timely and appropriate decision-making about their corporate and financial strategies. Next, the evolution of key economic and financial indicators in the Mexican environment is described to facilitate informed decision-making related to personal and business strategies in an integrated manner.

1. National Consumer Price Index (INPC, Spanish)
2. The Price and Quotation Index of the Mexican Stock Exchange (IPC, Spanish)
3. Exchange rate
4. Equilibrium interbank interest rate (TIIE, Spanish)
5. CETES rate of return
6. Investment units (UDIS, Spanish)

1. NATIONAL CONSUMER PRICE INDEX (INPC)

Born in 1995, it reflects changes in consumer prices, measuring the general increase in prices in the country. It is calculated on a fortnightly basis by the Bank of Mexico and INEGI (2021). INPC is published in the Official Gazette of the Federation on the 10th and 25th of each month. The reference period is the second half of July 2018.

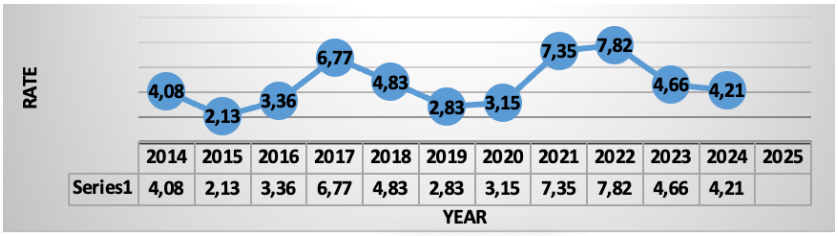
Table 1

Accumulated inflation in the year (Base: 2nd half of July 2018=100 with data provided by *Banco de México*)

Period	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
January	0.90	-0.09	0.38	1.70	0.53	0.09	0.48	0.86	0.59	0.76	0.89	0.29
February	1.15	0.09	0.82	2.29	0.91	0.06	0.90	1.50	1.43	1.24	0.99	0.56
March	1.43	0.51	0.97	2.92	1.24	0.44	0.85	2.34	2.43	1.51	1.28	0.88
April	1.24	0.25	0.65	3.04	0.90	0.50	-0.17	2.67	2.98	1.49	1.48	1.21
May	0.91	-0.26	0.20	2.92	0.73	0.21	0.22	2.88	3.17	1.27	1.29	2.05
June	1.09	-0.09	0.31	3.18	1.12	0.27	0.76	3.43	4.04	1.37	1.68	1.78
July	1.42	0.06	0.57	3.57	1.66	0.65	1.43	4.04	4.81	1.86	2.74	1.50
August	1.73	0.27	0.86	4.08	2.26	0.63	1.82	4.24	5.54	2.42	2.75	
September	2.18	0.27	1.47	4.41	2.69	0.89	2.06	4.88	6.19	2.88	2.80	
October	2.74	1.16	2.09	5.06	3.22	1.44	2.68	5.76	6.79	3.27	3.37	
November	3.57	1.71	2.89	6.15	4.10	2.26	2.76	6.97	7.41	3.93	3.06	
December	4.08	2.13	3.36	6.77	4.83	2.83	3.15	7.35	7.82	4.66	4.21	

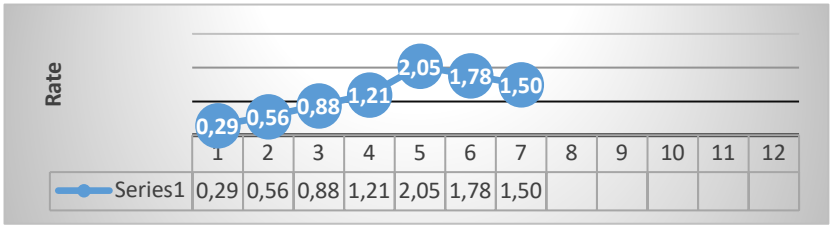
Source: Own elaboration (INEGI, 2025). Route: Indicadores económicos de coyuntura > Índices de precios > Índice nacional de precios al consumidor. Base segunda quincena de julio de 2018=100 > Mensual > Índice > Índice general

Graph 1
Inflation in Mexico (2014-2024 accumulated at the end of the year)



Source: Own elaboration (INEGI, 2025). Route: Indicadores económicos de coyuntura > Índices de precios > Índice nacional de precios al consumidor. Base segunda quincena de julio de 2018=100 > Mensual > Índice > Índice general

Graph 2
Inflation in Mexico (accumulated January-July 2025)



Source: Own elaboration (INEGI, 2025). Route: Indicadores económicos de coyuntura > Índices de precios > Índice nacional de precios al consumidor. Base segunda quincena de julio de 2018=100 > Mensual > Índice > Índice general

2. THE PRICE AND QUOTATION INDEX OF THE MEXICAN STOCK EXCHANGE (IPC)

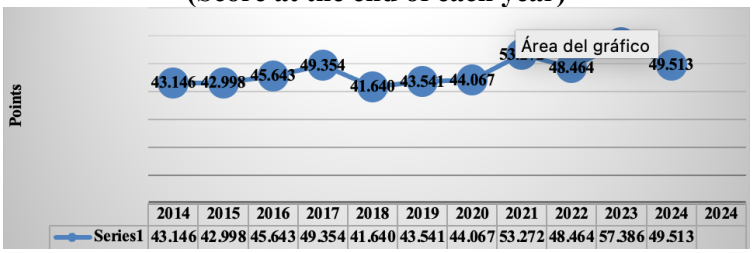
Represents the change in the values traded on the Mexican Stock Exchange concerning the previous day to determine the percentage of rise or fall of the most representative shares of the companies listed therein.

Table 2
The Price and Quotation Index of the Mexican Stock Exchange
(Base: October 1978, 0.78=100)

Period	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
January	40,879	40,951	43,631	47,001	50,456	43,988	44,862	42,986	51,331	54,564	57,373	51,210
February	38,783	44,190	43,715	46,857	47,438	42,824	41,324	44,593	53,401	52,758	55,414	52,326
March	40,462	43,725	45,881	48,542	46,125	43,281	34,554	47,246	56,537	53,904	57,369	52,484
April	40,712	44,582	45,785	49,261	48,354	44,597	36,470	48,010	51,418	55,121	56,728	56,259
May	41,363	44,704	45,459	48,788	44,663	42,749	36,122	50,886	51,753	52,736	55,179	57,842
June	42,737	45,054	45,966	49,857	47,663	43,161	37,716	50,290	47,524	53,526	52,440	57,451
July	43,818	44,753	46,661	51,012	49,698	40,863	37,020	50,868	48,144	54,819	53,094	57,398
August	45,628	43,722	47,541	51,210	49,548	42,623	36,841	53,305	44,919	53,021	51,986	58,709
September	44,986	42,633	47,246	50,346	49,504	43,011	37,459	51,386	44,627	50,875	52,477	
October	45,028	44,543	48,009	48,626	43,943	43,337	36,988	51,310	49,922	49,062	50,661	
November	44,190	43,419	45,286	47,092	41,733	42,820	41,779	49,699	51,685	54,060	49,813	
December	43,146	42,998	45,643	49,354	41,640	43,541	44,067	53,272	48,464	57,386	49513	

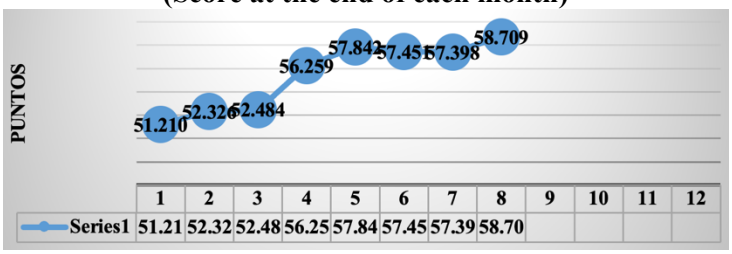
Source: Own elaboration (BANXICO, 2025).
https://www.banxico.org.mx/SieInternet/consultarDirectorioInternetAction.do?sector=7&accion=consultarCuadro&idCuadro=CF57&locale=es

Graph 3
The Price and Quotation Index of the Mexican Stock Exchange, 2014 - 2024
(Score at the end of each year)



Source: Own elaboration (BANXICO, 2025).
https://www.banxico.org.mx/SieInternet/consultarDirectorioInternetAction.do?sector=7&accion=consultarCuadro&idCuadro=CF57&locale=es

Graph 4
The Price and Quotation Index of the Mexican Stock Exchange, January-August 2025
(Score at the end of each month)



Source: Own elaboration (BANXICO, 2025).
https://www.banxico.org.mx/SieInternet/consultarDirectorioInternetAction.do?sector=7&accion=consultarCuadro&idCuadro=CF57&locale=es

3. EXCHANGE RATE

It is the value of the Mexican peso in relation to the dollar, calculated using the daily average of the five most important banks in the country, which reflects the spot price (cash) negotiated between banks. It is highly related to Inflation, the interest rate, and the Mexican Stock Exchange.

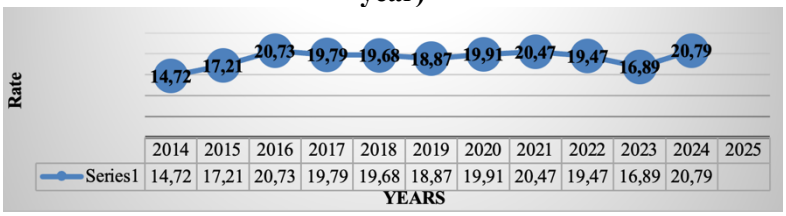
Table 3
Exchange rate (National currency per US dollar, parity at the end of each period)

Period	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
January	13.37	14.69	18.45	21.02	18.62	19.04	18.91	20.22	20.74	18.79	17.16	20.61
February	13.30	14.92	18.17	19.83	18.65	19.26	19.78	20.94	20.65	18.40	17.06	20.51
March	13.08	15.15	17.40	18.81	18.33	19.38	23.48	20.44	19.99	18.11	16.53	20.44
April	13.14	15.22	19.40	19.11	18.86	19.01	23.93	20.18	20.57	18.07	17.09	19.61
May	12.87	15.36	18.45	18.51	19.75	19.64	22.18	19.92	19.69	17.56	17.01	19.33
June	13.03	15.57	18.91	17.90	20.06	19.21	23.09	19.91	20.13	17.07	18.24	18.89
July	13.06	16.21	18.86	17.69	18.55	19.99	22.20	19.85	20.34	16.73	18.59	18.76
August	13.08	16.89	18.58	17.88	19.07	20.07	21.89	20.06	20.09	16.84	19.60	18.65
September	13.45	17.01	19.50	18.13	18.90	19.68	22.14	20.56	20.09	17.62	19.64	
October	13.42	16.45	18.84	19.15	19.80	19.16	21.25	20.53	19.82	18.08	20.04	
November	13.72	16.55	20.55	18.58	20.41	19.61	20.14	21.45	19.40	17.14	20.32	
December	14.72	17.21	20.73	19.79	19.68	18.87	19.91	20.47	19.47	16.89	20.79	

NOTE: Exchange rate fixed by the Banco de México, used for settling obligations denominated in foreign currency. Quote at the end.

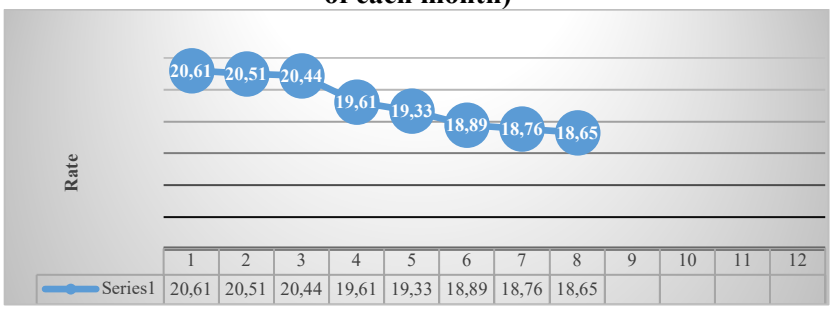
Source: Own elaboration (BANXICO, 2025).
https://www.banxico.org.mx/SieInternet/consultarDirectorioInternetAction.do?sector=6&accion=consultarCuadro&idCuadro=CF102&locale=es

Graph 5
Exchange rate (National currency per US dollar, 2014-2024, FIX parity at the end of each year)



Source: Own elaboration (BANXICO, 2025).
https://www.banxico.org.mx/SieInternet/consultarDirectorioInternetAction.do?sector=6&accion=consultarCuadro&idCuadro=CF102&locale=es

Graph 6
Exchange rate (National currency per US dollar, January-August 2025, FIX parity at the end of each month)



Source: Own elaboration (BANXICO, 2025).
https://www.banxico.org.mx/SieInternet/consultarDirectorioInternetAction.do?sector=6&accion=consultarCuadro&idCuadro=CF102&locale=es

4. EQUILIBRIUM INTERBANK INTEREST RATE (TIIE)

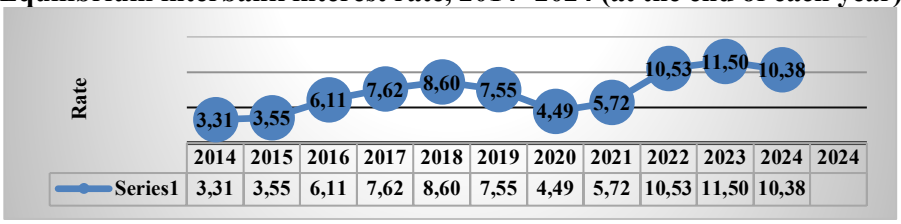
On March 23, 1995, the Bank of Mexico, to establish an interbank interest rate that better reflects market conditions, released the Interbank Equilibrium Interest Rate through the Official Gazette of the Federation.

Table 4
Equilibrium interbank interest rate (28-day quote)

Period	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
January	3.78	3.29	3.56	6.15	7.66	8.59	7.50	4.47	5.72	10.82	11.50	10.28
February	3.79	3.29	4.05	6.61	7.83	8.54	7.29	4.36	6.02	11.27	11.50	9.88
March	3.81	3.30	4.07	6.68	7.85	8.51	6.74	4.28	6.33	11.43	11.44	9.74
April	3.80	3.30	4.07	6.89	7.85	8.50	6.25	4.28	6.73	11.54	11.25	9.28
May	3.79	3.30	4.10	7.15	7.86	8.51	5.74	4.29	7.01	11.51	11.24	9.05
June	3.31	3.30	4.11	7.36	8.10	8.49	5.28	4.32	7.42	11.49	11.24	8.74
July	3.31	3.31	4.59	7.38	8.11	8.47	5.19	4.52	8.04	11.51	11.25	8.26
August	3.30	3.33	4.60	7.38	8.10	8.26	4.76	4.65	8.50	11.51	11.08	8.09
September	3.29	3.33	4.67	7.38	8.12	8.04	4.55	4.75	8.89	11.50	11.08	
October	3.28	3.30	5.11	7.38	8.15	7.97	4.51	4.98	9.56	11.50	10.95	
November	3.31	3.32	5.57	7.39	8.34	7.78	4.48	5.13	10.00	11.50	10.74	
December	3.31	3.55	6.11	7.62	8.60	7.55	4.49	5.72	10.53	11.50	10.38	

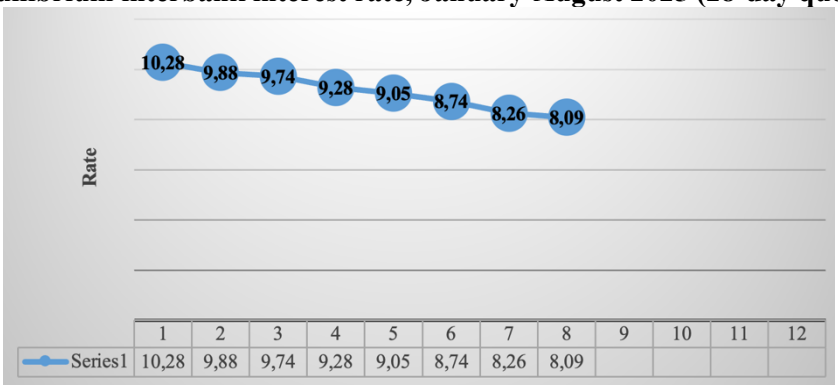
Source: Own elaboration (BANXICO, 2025).
https://www.banxico.org.mx/SieInternet/consultarDirectorioInternetAction.do?sector=18&accion=consultarCuadro&idCuadro=CF101&locale=es

Graph 7
Equilibrium interbank interest rate, 2014- 2024 (at the end of each year)



Source: Own elaboration (BANXICO, 2025).
https://www.banxico.org.mx/SieInternet/consultarDirectorioInternetAction.do?sector=18&accion=consultarCuadro&idCuadro=CF101&locale=es

Graph 8
Equilibrium interbank interest rate, January-August 2025 (28-day quote)



Source: Own elaboration (BANXICO, 2025).
https://www.banxico.org.mx/SieInternet/consultarDirectorioInternetAction.do?sector=18&accion=consultarCuadro&idCuadro=CF101&locale=es

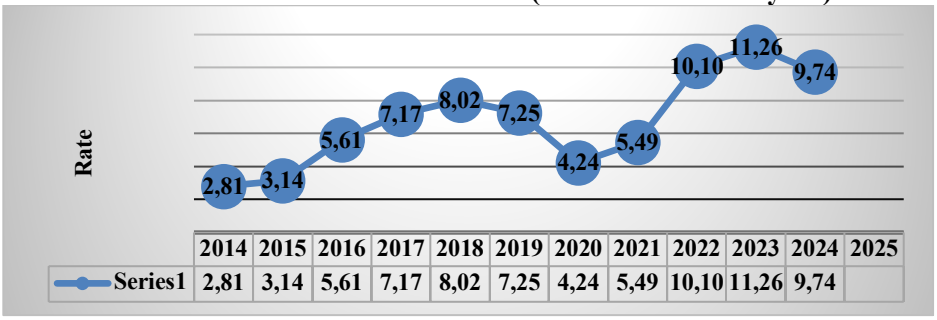
5. CETES RATE OF RETURN

Table 5
CETES rate of return (28-day)

Period	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2024
January	3.14	2.67	3.08	5.83	7.25	7.95	7.04	4.22	5.50	10.80	11.28	9.87
February	3.16	2.81	3.36	6.06	7.40	7.93	6.91	4.02	5.94	11.04	11.00	9.44
March	3.17	3.04	3.80	6.32	7.47	8.02	6.59	4.08	6.52	11.34	10.90	9.02
April	3.23	2.97	3.74	6.50	7.46	7.78	5.84	4.06	6.68	11.27	11.04	8.65
May	3.28	2.98	3.81	6.56	7.51	8.07	5.38	4.07	6.90	11.25	11.03	8.12
June	3.02	2.96	3.81	6.82	7.64	8.18	4.85	4.03	7.56	11.02	10.88	8.00
July	2.83	2.99	4.21	6.99	7.73	8.15	4.63	4.35	8.05	11.09	10.87	7.48
August	2.77	3.04	4.24	6.94	7.73	7.87	4.50	4.49	8.35	11.07	10.65	7.27
September	2.83	3.10	4.28	6.99	7.69	7.61	4.25	4.69	9.25	11.05	10.35	
October	2.90	3.02	4.69	7.03	7.69	7.62	4.22	4.93	9.00	11.26	10.20	
November	2.85	3.02	5.15	7.02	7.83	7.46	4.28	5.05	9.70	11.78	9.95	
December	2.81	3.14	5.61	7.17	8.02	7.25	4.24	5.49	10.10	11.26	9.74	

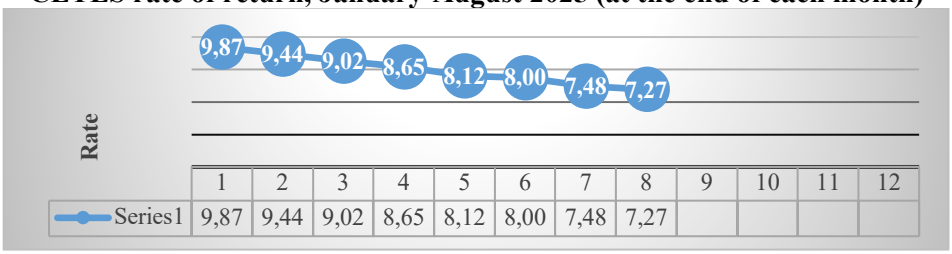
Source: Own elaboration (BANXICO, 2025).
https://www.banxico.org.mx/SieInternet/consultarDirectorioInternetAction.do?sector=22&accion=consultarCuadro&idCuadro=CF107&locale=es

Graph 9
CETES rate of return 2014- 2024 (at the end of each year)



Source: Own elaboration (BANXICO, 2025).
https://www.banxico.org.mx/SieInternet/consultarDirectorioInternetAction.do?sector=22&accion=consultarCuadro&idCuadro=CF107&locale=es

Graph 10
CETES rate of return, January-August 2025 (at the end of each month)



Source: Own elaboration (BANXICO, 2025).
https://www.banxico.org.mx/SieInternet/consultarDirectorioInternetAction.do?sector=22&accion=consultarCuadro&idCuadro=CF107&locale=es

6. INVESTMENT UNITS (UDIS)

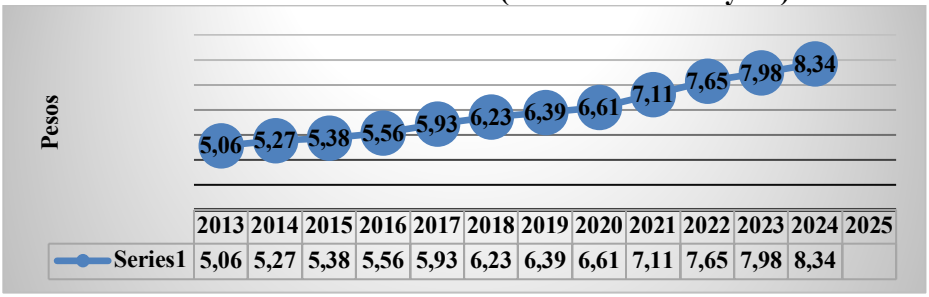
The UDI is a unit of account of constant real value to denominate credit titles. It does not apply to checks, commercial contracts, or other commercial transactions.

Table 6
Investment units (value concerning pesos)

Period	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
January	5.10	5.29	5.41	5.62	5.97	6.25	6.44	6.64	7.12	7.69	8.06	8.37
February	5.13	5.29	5.43	5.69	6.00	6.25	6.46	6.70	7.18	7.74	8.11	8.40
March	5.15	5.30	5.44	5.71	6.02	6.26	6.49	6.75	7.24	7.77	8.11	8.42
April	5.15	5.32	5.45	5.75	6.03	6.28	6.43	6.79	7.31	7.78	8.13	8.45
May	5.13	5.29	5.42	5.75	6.01	6.27	6.42	6.81	7.33	7.78	8.15	8.48
June	5.13	5.28	5.42	5.75	6.01	6.26	6.44	6.83	7.36	7.77	8.13	8.50
July	5.14	5.28	5.42	5.76	6.04	6.27	6.49	6.87	7.43	7.79	8.20	8.53
August	5.16	5.29	5.44	5.79	6.07	6.29	6.52	6.90	7.47	7.83	8.25	8.54
Sep.	5.18	5.31	5.45	5.82	6.11	6.29	6.55	6.92	7.53	7.87	8.25	
Oct.	5.20	5.33	5.49	5.84	6.13	6.31	6.57	6.97	7.57	7.90	8.26	
Nov.	5.23	5.36	5.53	5.89	6.17	6.35	6.60	7.04	7.62	7.94	8.32	
Dec.	5.27	5.38	5.56	5.93	6.23	6.39	6.61	7.11	7.65	7.98	8.34	

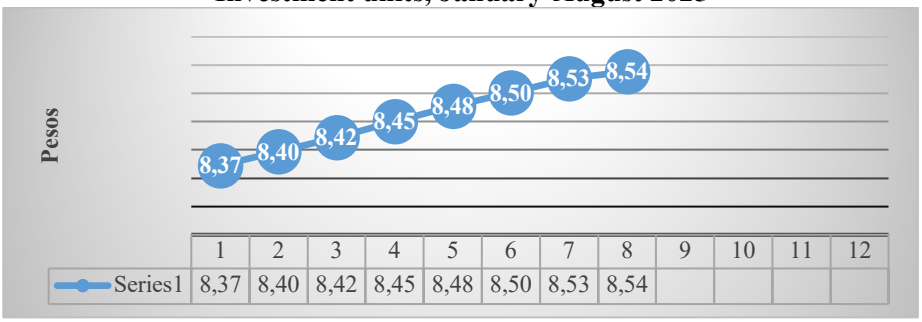
Source: Own elaboration (BANXICO, 2025).
https://www.banxico.org.mx/SieInternet/consultarDirectorioInternetAction.do?accion=consultarCuadro&idCuadro=CP150&locale=es

Graph 11
Investment units 2014-2024 (At the end of the year)



Source: Own elaboration (BANXICO, 2025).
https://www.banxico.org.mx/SieInternet/consultarDirectorioInternetAction.do?accion=consultarCuadro&idCuadro=CP150&locale=es

Graph 12
Investment units, January-August 2025



Source: Own elaboration (BANXICO, 2025).
https://www.banxico.org.mx/SieInternet/consultarDirectorioInternetAction.do?accion=consultarCuadro&idCuadro=CP150&locale=es

CONCLUSION

ROIC provides key insights into the return and efficient utilisation of a company's capital investment, enabling you to:

1. Improve investment and growth strategy.
2. Optimise capital structure and reduce costs.
3. Compare the company's performance to that of its competitors.
4. Prevent financial errors that can compromise the business's stability.

ROIC, like any other valuation metric, is just a tool; it can reveal profitability, strategic or business plan discrepancies, but the metric does not prove anything on its own. It is suggested to complement and strengthen decision-making with additional indicators, valuation multiples, or scenario analysis to decide which companies, Tangible or intangible projects, or assets to invest in.

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