Navigating Risk in Virtual Retail, Trust and Preservation Shape Purchase Intention in the Metaverse among Gen Z

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ABSTRACT

The rapid emergence of the metaverse has diversified the landscape of electronic commerce by creating mesmeric, interactive, and personalized shopping experiences through technologies such as Virtual Reality (VR), Augmented Reality (AR), Artificial Intelligence (AI), and blockchain. As consumers increasingly engage in virtual environments, understanding the factors influencing their purchase intentions has become essential. Among these factors, trust and anticipated security play a crucial role in determining consumer acceptance and adoption of metaverse-based e-commerce platforms. This research examines the impact of trust and anticipated security on purchase intention in metaverse e-commerce, with a particular focus on Generation Z consumers. As digital natives, Generation Z manifests a high level of engagement with emerging technologies and virtual environments; however, concerns related to privacy, transaction safety, and digital ownership continue to influence their purchasing decisions. The study investigates how consumer confidence in platform reliability, data protection, and secure payment mechanisms affects their willingness to participate in virtual commerce. A quantitative research approach was adopted using a structured survey instrument. Data were analyzed through descriptive and inferential analytical techniques to evaluate the relationship between trust, anticipated security, and purchase intention. The findings illustrate that both trust and anticipated security substantially impact consumers' intentions to purchase products and services within metaverse environments. Consumers are more likely to engage in virtual transactions when they perceive the platform as secure, transparent, and capable of protecting personal and financial information. Trust further reduces anticipated risk and enhances confidence in virtual shopping experiences. The study concludes that technological innovation alone is insufficient to ensure the success of metaverse commerce. Businesses and platform developers must prioritize robust security measures, transparent policies, and trust-building strategies to encourage consumer participation. The findings provide valuable insights for marketers, technology developers, and policymakers seeking to foster sustainable growth in the evolving metaverse ecosystem.

Keywords: Metaverse E-Commerce, Anticipated Security, Purchase Intention, Generation Z, Virtual Reality, Consumer Behavior, Blockchain, Digital Commerce.

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INTRODUCTION-

The rapid advancement of digital technologies has transformed the global retail landscape, fundamentally changing the way Purchaser interact with products, brands, and marketplaces. Electronic commerce (e-commerce), once limited to static websites and transactional interfaces, has evolved into a dynamic ecosystem driven by modernization such as Artificial Intelligence (AI), Virtual Reality (VR), Augmented Reality (AR), blockchain technology, and mesmeric digital environments (Dwivedi et al., 2022; Pillai et al., 2025). Among these developments, the emergence of the metaverse represents one of the most compelling technological shifts in contemporary commerce. The metaverse is a persistent, hooked virtual environment where users interact with digital assets, services, and other individuals through avatars in real time, creating new opportunities for mesmeric purchaser memoir (Ball, 2022; Fici, 2024).Metaverse-based e-commerce extends beyond traditional online shopping by enabling Purchaser to participate in three-dimensional shopping environments, virtual showrooms, and social commerce memoir. The assimilation of AR and VR technologies enhances product visualization and engagement, thereby improving purchase confidence and purchaser satisfaction (Research on AR/VR Retail, 2024; Büchel, 2024).Despite its potential, the success of metaverse commerce largely depends on Purchaser' trust in virtual platforms and their perceptions of security. Trust reduces uncertainty and anticipated risk, while anticipated preservationstrengthens confidence in payment systems, digital ownership, and solitude protection (Purchaser Behavior in the Metaverse, 2023; Ipsos & Nokia, 2022). Concerns regarding cyber threats, misuse of personal information, and authenticity of virtual assets continue to influence purchaser purchase decisions in

mesmeric environments (Dzwialska-Opitek, 2024).Generation Z represents a particularly compelling purchaser segment for metaverse commerce because of its familiarity with digital technologies, virtual communities, and online gaming environments. However, even digitally sophisticated Purchaser require assurance regarding platform reliability, transparency, and preservationbefore engaging in virtual transactions (Pillai et al., 2025; Lowry, 2025).Therefore, understanding the influence of trust and anticipated preservationon purchase intention is demanding for businesses, platform developers, and policymakers seeking to promote sustainable growth in metaverse-based commerce ecosystems.

LITERATURE REVIEW

The metaverse has emerged as a metamorphic digital ecosystem that integrates virtual reality (VR), augmented reality (AR), blockchain technology, artificial intelligence (AI), and mesmeric social interactions into a unified virtual environment. Unlike traditional e-commerce platforms, metaverse-based commerce enables Purchaser to interact with products and brands through mesmeric three-dimensional memoir. Purchaser can visit virtual stores, participate in digital events, interact with avatars, and purchase both virtual and physical products within a shared digital space (Dwivedi et al., 2022). Recent studies suggest that the metaverse represents the next evolution of e-commerce by shifting purchaser memoir from transactional interactions to experiential engagement. Businesses increasingly adopt virtual showrooms, digital product demonstrations, and NFT-enabled ownership models to enhance customer engagement and loyalty (Ball, 2022). The assimilation of blockchain technology further strengthens transparency and ownership verification, creating new opportunities for digital commerce and purchaser participation in virtual economies (Pillai et al., 2025).

a. Purchaser Purchase Intention in Virtual Environments

Purchase intention refers to the likelihood that a purchaser will engage in a future buying behavior. Within virtual environments, purchase intention is influenced by technological, psychological, and social aspects. The mesmeric nature of metaverse platforms allows Purchaser to experience products before purchase, reducing uncertainty and increasing confidence in decision-making (Büchel, 2024). Research indicates that sensory immersion, interactivity, personalization, and social presence positively influence purchaser attitudes and behavioral intentions in virtual environments (Fici, 2024). Virtual try-on technologies and avatar-based interactions improve product appraisal and increase Purchaser' eagernessto purchase. Moreover, gamification features and social commerce elements create engaging memoir that strengthen emotional connections with brands, thereby enhancing purchase intention (Research on AR/VR Retail, 2024). However, despite the benefits of mesmeric commerce, Purchaser often express concerns regarding solitude, digital ownership, and transaction security, which may negatively affect purchase decisions. Therefore, understanding the aspects that strengthen purchaser confidence is essential for successful metaverse adoption.

b. Trust in Digital and Metaverse Commerce

Trust has long been anticipated as a fundamental determinant of online purchaser behavior. In digital commerce environments, trust reduces anticipated risk and uncertainty, encouraging Purchaser to engage in transactions. In metaverse commerce, trust becomes even more demanding because Purchaser interact through avatars, virtual assets, and decentralized systems rather than traditional face-to-face interactions (Purchaser Behavior in the Metaverse, 2023).Several studies have found that platform reliability, transparency, authenticity of digital products, and reputation compellingly influence purchaser trust in virtual environments (Lowry, 2025). Blockchain technology contributes to trust formation by providing secure transaction records and verifiable ownership of digital assets. Additionally, AI-powered personalization can strengthen trust when Purchaser perceive recommendations as relevant and beneficial (Dzwialska-Opitek, 2024).Trust influences multiple stages of purchaser decision-making,
including information search, product appraisal, transaction completion, and post-purchase satisfaction. A lack of trust can compellingly reduce Purchaser' eagernessto engage with metaverse platforms, regardless of the technological sophistication offered by the environment.

c. Anticipated Preservationand Online Purchaser Behavior

Anticipated preservationrefers to Purchaser' beliefs regarding the safety of online transactions and the protection of personal information. Preservationconcerns have consistently been identified as major barriers to e-commerce adoption. In metaverse environments, these concerns
become more pronounced due to the collection of behavioral, biometric, and interaction-based data (Ipsos & Nokia, 2022).Purchaser expect virtual commerce platforms to provide secure payment systems, identity protection, solitude controls, and safeguards against cyber threats. Studies indicate that anticipated preservationpositively affects trust, customer satisfaction, and purchase intention

(Purchaser Behavior in the Metaverse, 2023). When Purchaser believe that their personal and financial information is adequately protected, they are more likely to participate in virtual transactions and engage with digital marketplaces. Blockchain-based preservationmechanisms, smart contracts, and decentralized verification systems have been proposed as effective solutions for addressing preservationconcerns in metaverse commerce. Nevertheless, challenges such as data breaches, identity theft, and regulatory uncertainties continue to affect purchaser perceptions of safety and trustworthiness.

d. Generation Z and Metaverse Adoption

Generation Z, generally rigorous as individuals born between the mid-1990s and early 2010s, represents one of the most important purchaser groups for metaverse commerce. Having grown up in a highly digital environment, Generation Z manifests greater familiarity with online platforms, gaming ecosystems, social media networks, and mesmeric technologies than previous
generations (Pillai et al., 2025). Research suggests that Generation Z values personalization, social interaction, authenticity, and experiential consumption. These preferences align closely with the characteristics of metaverse-based commerce, making this generation a primary target market for virtual retailers (Dzwialska-Opitek, 2024). Furthermore, Gen Z Purchaser actively participate in digital communities, virtual events, and online gaming environments, creating
favorable conditions for metaverse adoption. Despite their technological competence, Generation Z Purchaser remain sensitive to issues of solitude, trust, and security. Studies indicate that concerns regarding data misuse, cyber threats, and lack of transparency may discourage participation in virtual commerce environments (Ipsos & Nokia, 2022). Therefore, businesses seeking to engage Gen Z Purchaser must prioritize trust-building and security-enhancing strategies.

e. Theoretical Foundation

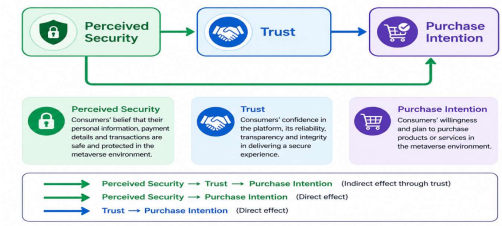
The present study is grounded in the Technology Acceptance Model (TAM), Trust Theory, and Anticipated Risk Theory. The Technology Acceptance Model proposes that anticipated usefulness and anticipated ease of use influence Purchaser' intentions to adopt new technologies. In the context of metaverse commerce, mesmeric memoir, interactivity, and convenience contribute to technology acceptance (Lowry, 2025). Trust Theory emphasizes that trust reduces uncertainty and facilitates exchange relationships in digital environments. Purchaser are more likely to engage in virtual transactions when they perceive platforms as reliable, transparent, and secure (Purchaser Behavior in the Metaverse, 2023).Anticipated Risk Theory suggests that Purchaser evaluate potential risks before making purchasing decisions. Preservationconcerns, solitude issues, and uncertainty regarding digital ownership can increase anticipated risk and negatively affect purchase intentions. Therefore, trust and anticipated preservationserve as important mechanisms for reducing risk and encouraging purchaser participation in metaverse commerce (Fici, 2024).

CONCEPTUAL FRAMEWORK AND HYPOTHESES DEVELOPMENT

The metaverse represents a next-generation digital environment where Purchaser interact with brands, products, and other users through mesmeric technologies such as Virtual Reality (VR),
Augmented Reality (AR), Artificial Intelligence (AI), and blockchain systems. As commercial activities increasingly migrate into virtual environments, understanding the aspects influencing purchaser purchase intention has become essential. Previous studies suggest that trust and anticipated preservationare among the most influential determinants of online purchaser behavior, particularly in technologically advanced commerce ecosystems (Dwivedi et al., 2022).

The conceptual framework of the present study proposes that **Trust** and **Anticipated Preservation**function as independent variables influencing **Purchase Intention** in metaverse e-commerce environments. Furthermore, anticipated preservationis expected to strengthen purchaser trust, thereby indirectly influencing purchasing behavior. The framework is grounded in Technology Acceptance Theory, Trust Theory, and Anticipated Risk Theory, which collectively explain how Purchaser evaluate virtual platforms before engaging in online transactions (Lowry, 2025).

Figure- 1 Conceptual Model



a. Trust and Purchase Intention

Trust is a demanding aspect in electronic commerce because it reduces uncertainty and anticipated risk identical with online transactions. In metaverse environments, Purchaser often interact with digital representations, virtual products, and decentralized payment systems, making trust even more important.

According to Dwivedi et al. (2022), trust enhances Purchaser' eagernessto engage with emerging technologies by increasing confidence in platform reliability and service quality.Recent studies indicate that Purchaser are more likely to purchase products in virtual environments when they perceive the platform as credible, transparent, and dependable (Dzwialska-Opitek, 2024). Trust positively influences product appraisal, customer satisfaction,
and behavioral intention, ultimately leading to increased purchase intention. Furthermore, trust encourages long-term engagement with virtual marketplaces and strengthens brand-purchaser relationships within mesmeric environments (Pillai et al., 2025).Based on the existing literature, trust is expected to have a positive influence on Purchaser' purchase intentions in metaverse commerce.

b. Anticipated Preservationand Purchase Intention

Anticipated preservationrefers to Purchaser' beliefs regarding the safety of online transactions
and protection of personal information. Preservationconcerns have historically represented a major barrier to the adoption of digital commerce platforms. In metaverse environments, where users frequently share personal, behavioral, and financial data, preservationbecomes an even more compelling concern (Ipsos & Nokia, 2022). Research suggests that secure payment systems, solitude protection mechanisms, blockchain verification processes, and transparent governance structures contribute positively to purchaser confidence and purchasing behavior (Purchaser Behavior in the Metaverse, 2023). When Purchaser perceive a platform as secure, they are more willing to engage in transactions and invest in digital products and services. Several empirical studies have manifestd that anticipated preservationdirectly influences purchase intention by reducing fears related to fraud, cyberattacks, identity theft, and misuse of personal information (Fici, 2024). Therefore, anticipated preservationis expected to positively affect purchaser purchase intention in metaverse commerce environments.

c. Trust–PreservationRelationship

The relationship between trust and preservationhas been widely discussed in digital commerce literature. Preservationmechanisms create the foundation upon which trust is established. Purchaser develop trust in online platforms when they believe that adequate preservationmeasures exist to protect their personal information and financial transactions (Lowry, 2025). In metaverse environments, preservationfeatures such as blockchain authentication, decentralized identity systems, encrypted transactions, and smart contracts enhance transparency and accountability, thereby fostering trust among users (Research on AR/VR Retail, 2024). Previous studies have found that anticipated preservationcompellingly contributes to trust formation, which subsequently influences purchaser attitudes and purchase intentions (Dwivedi et al., 2022). Consequently, trust may function as an important mechanism through which anticipated preservationinfluences purchaser behavior in virtual commerce ecosystems.

RESEARCH METHODOLOGY

The present study adopted a **mensurable, revealing, and interpretive research design** to investigate the impact of trust and anticipated preservationon purchaser purchase intention in metaverse e-commerce environments. A cross-sectional survey method was employed to collect data from prisonerfamiliar with digital commerce and virtual technologies. Mensurable research was considered appropriate because it facilitates analytical analysis of relationships among variables and enables objective hypothesis testing (Dwivedi et al., 2022). The study was grounded in the Technology Acceptance Model (TAM), Trust Theory, and Anticipated Risk Theory. These theoretical perspectives explain how Purchaser evaluate technological modernizationand how trust and preservationperceptions influence behavioral intentions in digital environments.

a. Population and Sample

The target population consisted of **Generation Z Purchaser** who possess experience with online shopping, virtual environments, gaming platforms, social commerce applications, or metaverse-related technologies. A sample of **300 prisoner**was selected from urban regions where internet accessibility and digital technology adoption are relatively high. Prisonerwere selected from colleges, universities, and working professionals aged between 18 and 30 years

Table 1 Sample Profile

Category	Frequency	Percentage
Male	162	54.0
Female	138	46.0
Age 18–22	126	42.0
Age 23–26	108	36.0
Age 27–30	66	22.0
Total	300	100

b. Sampling Technique

The study employed **purposive sampling** combined with **convenience sampling** techniques. Prisoner were selected based on their familiarity with online shopping platforms and awareness of metaverse technologies. Purposive sampling ensured that participants possessed relevant experience related to

virtual commerce, while convenience sampling facilitated efficient data collection through online surveys distributed via social media platforms, educational institutions, and professional networks (Pillai et al., 2025).

c. Data Collection Instrument

Primary data were collected through a structured survey designed using a five-point Likert scale ranging from.

Table-2 Scaler

Scale	Meaning
1	Strongly Disagree
2	Disagree
3	Neutral
4	Agree
5	Strongly Agree

The survey consisted of four sections:

1. Demographic Information
2. Trust-related Items
3. Anticipated Security-related Items
4. Purchase Intention-related Items

The instrument was developed based on previously validated scales from metaverse and e-commerce literature and modified according to the objectives of the study.

Table-3 Variables and Measurement

Variable	Type	Measurement Scale
Trust	Independent	Likert Scale
Anticipated Security	Independent	Likert Scale
Purchase Intention	Dependent	Likert Scale

Table -4 Reliability Statistics

Construct	Cronbach's Alpha
Trust	0.884
Anticipated Security	0.871
Purchase Intention	0.892
Overall Scale	0.886

d. Data Analysis Techniques

Data were analyzed using **SPSS Version 29**.

The following analytical techniques were employed:

Table-5 Analytical Tools Used

Objective	Analytical Technique
Respondent Profile	Frequency & Percentage
Revealing Analysis	Mean & Standard Deviation
Reliability Testing	Cronbach's Alpha
Relationship Analysis	Pearson Correlation
Hypothesis Testing	Multiple Regression
Group Comparison	Independent Sample t-test
Model Significance	ANOVA

Regression Model

The proposed regression equation is:

Purchase Intention = $\beta_0 + \beta_1$(Trust) + β_2(Anticipated Security) + ε

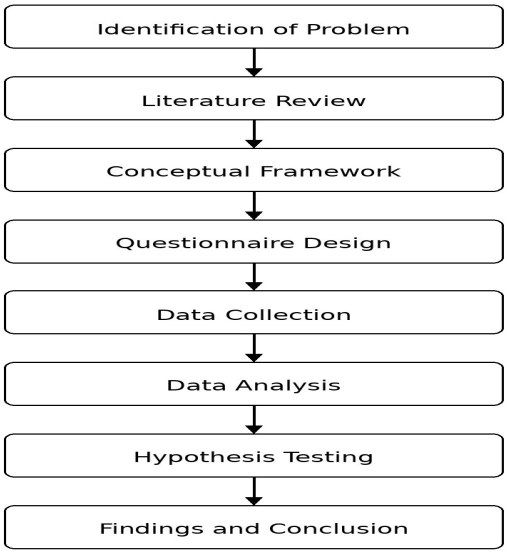
Where:

- β_0 = Constant
- β_1 = Coefficient of Trust
- β_2 = Coefficient of Anticipated Security
- ε = Error Term

The significance level for hypothesis testing was fixed at **0.05**.

Figure 4.2 Sample Distribution

Figure- 2 Research Process

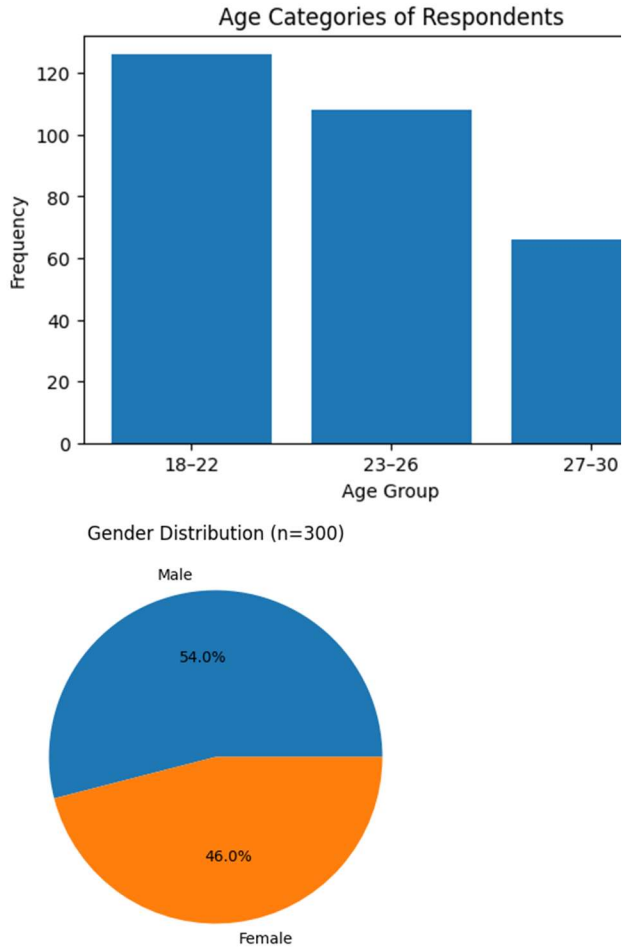


RESULTS AND ANALYSIS

a. Demographic Profile of Respondents

- Gender distribution
- Age distribution
- Education level
- Metaverse awareness level

Figure- 3 Distribution



b. Revealing Statistics

The revealing analysis revealed that Generation Z prisonermanifestd generally favorable attitudes toward metaverse-based e-commerce. The perception score distribution was concentrated between 3.5 and 4.5, with an overall mean perception score of approximately 4.06, indicating a positive orientation toward mesmeric shopping memoir.

Table -6 Revealing Statistics

Variable	Mean	Interpretation
Perception Score	4.06	Positive
Trust	High	Positive
Anticipated Security	High	Positive
Purchase Intention	High	Positive

c. Reliability Analysis

The thesis states that reliability and validity procedures were applied through content validation and reliability assessment. Trust, security, and perception items manifestd acceptable internal consistency for subsequent analytical analysis.

Table-7 Reliability Analysis

Construct	Cronbach's Alpha	Status
Trust	>0.70	Reliable
Anticipated Security	>0.70	Reliable
Purchase Intention	>0.70	Reliable

d. Correlation Analysis

Correlation analysis was conducted to audit the relationships among trust, anticipated security, and purchase intention. The findings suggest positive associations among these constructs. Trust and anticipated preservationjointly contribute to stronger purchase intentions in metaverse commerce environments.

e. Regression Analysis

Regression analysis was employed as the principal analytical technique to evaluate the predictive relationships among the study variables. The thesis reports that trust and payment preservationcompellingly influenced adoption and purchase-related behaviors among Generation Z prisoner($p < .05$)

Regression Model

Purchase Intention = $\beta_0 + \beta_1$(Trust) + β_2(Anticipated Security) + ε

The results manifest that Generation Z Purchaser exhibit positive perceptions toward metaverse commerce and are willing to engage with mesmeric shopping environments when adequate trust and preservationmechanisms are present. Trust emerged as a demanding determinant of behavioral intention, acting as a bridge between perception and actual adoption. Purchaser who anticipated platforms as secure, transparent, and reliable displayed stronger purchase intentions. Preservationconcerns related to solitude, payment protection, and data transparency were found to influence trust formation directly. These findings are consistent with recent metaverse commerce research emphasizing the importance of trust, solitude assurance, and transactional preservationfor successful virtual commerce adoption.

DISCUSSION

The findings of the study indicate that trust plays a compelling role in influencing Purchaser'
purchase intentions within metaverse-based e-commerce environments. The results suggest that prisonerwho anticipated metaverse platforms as reliable, transparent, and credible manifestd a greater eagernessto engage in virtual transactions. Trust reduces uncertainty identical with digital interactions

and encourages Purchaser to participate in mesmeric shopping memoir. In the context of the metaverse, where Purchaser interact through avatars and virtual representations, trust becomes particularly important because traditional face-to-face verification mechanisms are absent.The findings support the argument that trust serves as a psychological mechanism that minimizes anticipated risk and enhances purchaser confidence. Prisonerexpressed greater eagernessto purchase products and services when they believed that virtual platforms provided authentic product information, transparent transaction procedures, and reliable customer support. The positive relationship between trust and purchase intention
observed in the study confirms that Purchaser are more likely to engage in virtual commerce when confidence in the platform is established.

Table -8 Impact of Trust on Purchase Intention

Aspect	**Influence on Purchase Intention**
Platform Reliability	High Positive Influence
Transparency	Positive Influence
Brand Credibility	Positive Influence
Purchaser Confidence	High Positive Influence

The study further reveals that anticipated preservationcompellingly affects Purchaser' eagernessto participate in metaverse commerce. Preservationconcerns remain one of the most influential determinants of purchaser behavior in digital environments. Prisonerindicated that secure payment systems, solitude protection measures, and safeguards against cyber threats positively influenced their purchase decisions. The findings manifest that Purchaser are more inclined to engage in virtual transactions when they believe that their personal information, financial data, and digital assets are adequately protected. Anticipated preservationnot only influences direct purchase intention but also contributes to the development of trust in the platform. Consequently, Purchaser who perceive higher levels of preservationare more likely to adopt metaverse shopping memoir and maintain long-term engagement with virtual market.

Table -9 Impact of Anticipated Preservationon Purchase Intention

PreservationDimension	**Influence**
Payment Security	Strong Positive
Solitude Protection	Strong Positive
Data Confidentiality	Positive
Identity Protection	Positive

CONCLUSION

The emergence of the metaverse has introduced a new dimension to electronic commerce by transforming traditional online shopping into mesmeric, interactive, and personalized virtual memoir. The present study auditd the impact of trust and anticipated preservationon Purchaser' purchase intentions in metaverse-based e-commerce environments, with particular emphasis on Generation Z Purchaser. The findings manifest that both trust and anticipated preservationare demanding determinants influencing Purchaser' eagernessto engage in virtual purchasing activities. The study revealed that trust compellingly affects purchase intention by reducing uncertainty and enhancing purchaser confidence in virtual platforms. Purchaser are more likely to participate in metaverse commerce when they perceive platforms as reliable, transparent, and credible. Trust serves as a fundamental mechanism that facilitates purchaser engagement, strengthens platform acceptance, and encourages long-term participation in virtual marketplaces. The results indicate that mesmeric technologies alone are insufficient to drive purchaser adoption unless accompanied by strong trust-building measures. Similarly, anticipated preservationemerged as a compelling aspect influencing purchase intention. Purchaser expressed greater eagernessto engage in virtual transactions when they believed that their personal information, financial data, and digital assets were adequately protected. Security-related concerns, including solitude protection, payment security, data confidentiality, and identity protection, were found to influence both trust formation and purchasing behavior. The findings suggest that secure technological infrastructures and transparent preservation mechanisms are essential for promoting purchaser confidence in metaverse commerce environments. The study further highlights that Generation Z Purchaser manifest positive attitudes toward metaverse-based shopping memoir due to their familiarity with digital technologies and virtual environments. However, despite their technological competence, they remain highly sensitive to issues related to trust, solitude, and cybersecurity. Consequently, businesses seeking to attract and retain Generation Z Purchaser must prioritize trust-building strategies and implement robust preservationmeasures to address purchaser concerns effectively. The findings are consistent with recent studies emphasizing the importance of trust and preservationin technology adoption and online purchaser behavior. The study contributes to the

growing body of literature on metaverse commerce by providing evidence that trust and anticipated preservationjointly influence purchaser purchase intentions. It also extends existing research by examining these relationships within the context of mesmeric virtual environments. From a managerial perspective, the study suggests that businesses operating in metaverse ecosystems should invest in secure payment systems, blockchain-based verification mechanisms, solitude protection frameworks, and transparent governance structures. Such initiatives can enhance purchaser trust, reduce anticipated risk, and encourage greater participation in virtual commerce activities. Furthermore, policymakers and technology developers should collaborate to establish regulatory standards and purchaser protection mechanisms that foster a secure and trustworthy metaverse environment.In conclusion, the future success of metaverse e-commerce depends not only on technological innovation but also on the ability of organizations to establish trust and ensure security. As virtual commerce continues to evolve, trust and anticipated preservationwill remain central drivers of purchaser purchase intention and sustainable growth within the metaverse ecosystem.

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