
Metaverse Economy: Redefining Consumer Experience and Business Models

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KEYWORDS:

Metaverse Economy,
Consumer Experience,
Technology Acceptance,
Business Model, Value
Capture

ABSTRACT

Betul, maaf. Berikut versi tepat **250 kata**:

Immersive technologies such as virtual reality (VR) and augmented reality (AR) are catalyzing a metaverse that reshapes how consumers interact with brands. Beyond novel experiences rooted in presence, avatars, and co-creation, the metaverse is reorganizing digital business models. Yet evidence linking experience to loyalty and monetization remains scarce. This study identifies determinants of metaverse consumer experience, tests relationships among technology adoption, immersive experience, and business model performance, and proposes strategic design guidelines. We employ a quantitative survey of 200 Indonesian metaverse users analyzed with Structural Equation Modeling–Partial Least Squares (SEM-PLS), complemented by qualitative interviews. Results show that presence, embodiment, and co-creation significantly raise engagement, explaining 64 percent of variance. Technology acceptance drivers—performance expectancy, social influence, and facilitating conditions—account for 58 percent of loyalty variance. Moreover, a configuration combining experience-as-a-service, community subscriptions, and tokenization explains 61 percent of the variance in willingness to pay. These findings advance metaverse scholarship by demonstrating that value creation requires integrating experiential design, technology acceptance, and business model innovation rather than isolating single lever. Practically, the study offers firms actionable guidance to architect immersive journeys that convert engagement into measurable economic outcomes: prioritize presence and embodiment to deepen involvement; remove adoption frictions through clear utility, social proof, and supportive infrastructure; and pair co-creative mechanics with recurring and tokenized revenue models. For growing emerging markets, where metaverse uptake is accelerating, such integration is salient, guiding resource allocation, strategic partnership choices, and roadmap sequencing to sustain value capture over time while remaining sensitive to local contexts and constraints.

INTRODUCTION

The recent digital transformation marks a shift from two-dimensional interfaces to immersive spaces that unite the physical–virtual through VR/AR/XR, which fundamentally changes how value is created, delivered, and captured in the global consumer market (Flavián, Ibáñez-Sánchez, & Orús, 2019; Orús, 2021). This convergence has given rise to the metaverse as a new layer of the internet with persistent, multi-user, and avatar-based characters a context that expands the boundaries of the consumer experience beyond conventional physical stores and e-commerce (Mystakidis, 2022).

Conceptually, the metaverse offers continuity of identity, social relations, and the digital economy that is increasingly relevant to the company's growth strategy across sectors.

The literature shows that psychological dimensions such as presence, telepresence, and embodiment mediate the impact of immersive technology on attitudes, engagement, and purchasing decisions, thus opening up opportunities for designing experience-based customer journeys (Flavián et al., 2019; Yang, 2024). At the same time, companies are increasingly experimenting with phygital experiences combining retail, community, and digital asset interactions to enrich brand value and loyalty (Barrera & Shah, 2023). Thus, the metaverse is seen not just as a new channel, but as an arena of experience design and value architecture that transforms the consumer-company relationship.

From an ecosystem and business model perspective, the shift towards immersive platforms demands new revenue logics (e.g., access/subscription, experience-as-a-service, proprietary tokenization, and community-based complementary) as well as coordination of complements in multi-sided markets (Kohtamäki et al., 2019; Liu et al., 2024). Recent studies highlight that metaverse adoption is fueling business model innovation yet cross-industry empirical evidence regarding value drivers and value capture mechanisms remains limited and fragmented (Kraus et al., 2022; Cristache et al., 2024).

In the realm of consumer marketing, the latest research agenda underscores the potential of the metaverse to shift the paradigm of experience from customer experience to co-creation of transformational experiences as well as realign relevant value metrics for practice (Dwivedi et al., 2023; Buhalis & Karatay, 2023). Meanwhile, examination of the metaverse emphasizes differentiating attributes such as persistence, asset interoperability, and creator economy that alter consumer expectations of experience and ownership (Richter & Schultz, 2023).

The relevance of this study is strengthened by empirical findings regarding metaverse user acceptance influenced by performance expectancy, social influence, and cultural/psychological readiness, indicating the need for an integrative model that links acceptance, experience, and business outcomes (Lee, Han, & Suh, 2022; Sharma & Singh, 2025). Meanwhile, retail XR studies affirm telepresence as a determinant of engagement and purchase intent variables that have the potential to bridge metaverse experience design and business outcomes (Yang, 2024).

In the service and tourism industry, the metaverse is positioned as a driver of value co-creation through simulations, communities, and personalized services that activate consumer identities and imaginations with consequences for offer design, data governance, and membership-based monetization (Buhalis & Karatay, 2023; Barrera & Shah, 2023). Similar dynamics have emerged in fashion/luxury retail through digital assets and token-gated experiences that elevate the emotional-imaginary dimension as an antecedent to attitudes towards in-world retail (Hussain, Khan, & Park, 2024).

The metaverse narrative is evolving rapidly, yet cross-context evidence of how immersive experiences translate into value capture (revenue, lifetime value, network effects) remains scarce creating urgent need for an economic framework that integrates experience design, technology acceptance, and platform ecosystems (Dwivedi et al., 2023; Richter & Schultz, 2023; Liu et al., 2024). After the Web3/NFT hype cycle, corporations began shifting focus from asset speculation to utility and loyalty but marketing and management disciplines still require empirically testable business model frameworks to reduce execution risk (Kraus et al., 2022; Cristache et al., 2024; Buhalis & Karatay, 2023). The variability of cross-cultural and cognitive acceptance of the metaverse demands sharper understanding of psycho-social determinants to enable companies to design inclusive and ethical go-to-market strategies while ensuring privacy-by-design to mitigate risks (Sharma & Singh, 2025; Lee et al., 2022).

Table 1. The dimensions of immersive experiences and the implications of the metaverse business model

Key dimensions	Brief description	Business model implications	Source
Presence & Telepresence	A sense of "presence" in a virtual space increases engagement & purchase intent	<i>Experience-as-a-service, premium access</i>	Flavián et al., 2019; Yang, 2024
Embodiment/Avatar	Identity & <i>self-presentation</i> encourage community participation	Community subscriptions, <i>virtual goods</i>	Flavián et al., 2019; Barrera & Shah, 2023
Co-creation	Producer–consumer interaction generates shared value	<i>Co-creation marketplace, creator royalty</i>	Buhalis & Karatay, 2023; Dwivedi et al., 2023
Tokenization/Interoperability	Digital assets can be traded across platforms	<i>Ownership-based loyalty, token-gated perks</i>	Cristache et al., 2024; Kraus et al., 2022
Platform Ecosystem	Networking & complement effects accelerate diffusion	<i>Revenue sharing, app stores, SDK fees</i>	Kohtamäki et al., 2019; Liu et al., 2024

The table summarizes the relationship of immersive experience theory to monetization options, clarifying the pathway of how experience design affects value capture in the metaverse economy.

Few studies simultaneously model the relationship chain of acceptance → experiential value → business model performance in the metaverse context and test across industries/countries; most research fragments into either technology acceptance or marketing practices without providing generalizable design rules for strategic decision-making (Lee et al., 2022; Dwivedi et al., 2023; Cristache et al., 2024).

This research offers an original contribution in the form of an XCE-BM (eXtended Consumer Experience–Business Model) framework that integrates immersive experience constructs (presence, embodiment, co-creation), determinants of acceptance (UTAUT/TAM), and platform value capture mechanisms (tokenization, multi-sided monetization) to derive testable propositions and performance metrics that can be replicated across sectors (Barrera & Shah, 2023; Lee et al., 2022; Liu et al., 2024).

This research aims to (1) identify the factors that shape consumer experience in the metaverse and their influence on engagement and loyalty, (2) analyze the linkage between consumer experience and performance through business model configurations such as access, community, and tokenization, and (3) formulate design guidelines that companies can use to align experience architecture with sustainable revenue strategies.

RESEARCH METHODS

Types of Research

This study uses a quantitative approach with an explanatory survey method. This approach was chosen to test the causal relationship between consumer experience variables (presence, embodiment, co-creation), technology acceptance (performance expectancy, social influence, facilitating conditions), and business model performance (loyalty, willingness to pay, engagement). The analysis was carried out with *Structural Equation Modeling* based on Partial Least Squares (SEM-PLS), which is suitable for testing models with latent constructs and reflective and formative indicators (Hair et al., 2021).

Population and Sample

The population of this study is metaverse users in Indonesia who have had at least three interaction experiences in metaverse platforms (e.g. Roblox, Decentraland, Meta Horizon Worlds, or similar platforms). Samples were determined using the purposive sampling technique, with the following criteria: (1) Be at least 18 years old, (2) Have used metaverse platforms for consumption, social, or entertainment activities, (3) Have access to a supporting device (VR headset, PC, or mobile).

A minimum sample count of 200 respondents was set based on the SEM-PLS requirement of 10 times the maximum number of structural paths directed at any latent construct (Hair et al., 2021). Given the research model contains three independent variables predicting a single dependent variable in the most complex relationship, the minimum sample size calculation is $10 \times 3 = 30$. However, to ensure robust estimation and adequate statistical power (0.80) for detecting medium effect sizes ($f^2 = 0.15$) at $\alpha = 0.05$, we expanded the sample to 200 respondents using G*Power 3.1 analysis.

Research Instruments

The main instruments in the form of structured questionnaires developed from validated scales, include:

1. Presence/Telepresence: adapted from Flavián et al. (2019),
2. Embodiment/Avatar identification: from Yee & Bailenson (2020),
3. Co-creation: from Ranjan & Read (2019),
4. Technology Acceptance (UTAUT2): from Venkatesh et al. (2012),
5. Customer outcomes (loyalty, engagement, willingness to pay): from Dwivedi et al. (2023).

The scale is measured using a 5-point Likert (1 = strongly disagree, 5 = strongly agree).

Data Collection Techniques

Data is collected through:

1. Online surveys use Google Forms or Qualtrics which are disseminated through metaverse user communities, social media, and online forums.
2. Semi-structured interviews were limited to 10 key informants (digital industry practitioners, metaverse developers, and digital marketing experts) to enrich the context of quantitative interpretation.

Research Procedure

The stages of the research were carried out as follows:

1. Preparation: preparation of instruments, content validity test through experts, and *pilot test* on 30 respondents.
2. Data Collection: distribution of questionnaires to respondents who meet the criteria.
3. Data Cleanup: Screening data to remove incomplete or biased responses (e.g. filling too fast).
4. Initial Analysis: reliability tests (Cronbach's Alpha, Composite Reliability) and construct validity (AVE, Fornell–Larcker).
5. Advanced Analysis: testing of SEM-PLS structural models, mediation and moderation tests when relevant.
6. Triangulation: enrichment of results with qualitative interview data.

Data Analysis Techniques

The data is analyzed with the following steps:

1. Descriptive analysis to describe respondent profiles and metaverse usage patterns.
2. Validity and reliability test (Outer Model SEM-PLS): including *reliability indicators*, *convergent validity*, *discriminant validity*.
3. Hypothesis test (Inner Model SEM-PLS): including path coefficients, R^2 , f^2 , Q^2 values, and significance through bootstrapping 5,000 resamples.

Mediation and moderation analysis to see the role of co-creation and social influence in the relationship of experience → performance of business models.

RESULTS AND DISCUSSION

Validity and Reliability of Research Instruments

The construct validity test shows that all indicators have a loading factor > 0.7 , which means it is valid in measuring latent constructs. These results are in line with the SEM-PLS guideline which states that a loading factor value above 0.7 indicates a good indicator convergence (Hair et al., 2021; Flavián et al., 2019; Dwivedi et al., 2023). The Composite Reliability (CR) value of all latent variables is in the range of 0.90–0.94, which indicates high reliability. In addition, Cronbach's Alpha on all constructs is above 0.8, so it can be ensured that the internal consistency of the instrument is quite good (Hair et al., 2021; Kraus et al., 2022; Liu et al., 2024).

Convergent validity is also achieved with an Average Variance Extracted (AVE) value above 0.5. This shows that the indicator is able to explain more than 50% of the variance of the constructed measured (Buhalis & Karatay, 2023; Cristache et al., 2024; Sharma & Singh, 2025). The discriminant validity test using the Fornell–Larcker criterion resulted in a larger square root of AVE than the correlation between constructs. This proves that research constructs are different from each other (Richter & Schultz, 2023; Barrera & Shah, 2023; Yang, 2024).

These results reinforce the literature that confirms the importance of testing validity and reliability before moving on to structural model testing (Flavián et al., 2019; Kohtamäki et al., 2019; Lee et al., 2022). Thus, the instruments used in this study have met statistical and theoretical criteria, making them suitable for use at the testing stage of the intervariable relationship model (Dwivedi et al., 2023; Hussain et al., 2024; Sharma & Singh, 2025).

Table 2. Construct Reliability and Validity Test

Variable	Cronbach's Alpha	Composite Reliability	AVE	Status
Presence/Telepresence	0.89	0.92	0.68	Valid & Reliable
Embodiment/Avatar	0.87	0.91	0.66	Valid & Reliable
Co-creation	0.85	0.90	0.63	Valid & Reliable
Technology Acceptance	0.90	0.93	0.71	Valid & Reliable
Customer Outcomes	0.91	0.94	0.72	Valid & Reliable

Remarks: All variables showed high reliability (CR > 0.85) and convergent validity (AVE > 0.5).

The Relationship of Immersive Experience to Consumer Engagement

SEM-PLS analysis showed significant presence → engagement ($\beta = 0.42$; $p < 0.01$). This proves that virtual presence experiences increase consumers' emotional engagement (Flavián et al., 2019; Yang, 2024; Dwivedi et al., 2023). The embodiment variable had a positive effect ($\beta = 0.36$; $p < 0.05$), suggesting that avatar identification increases loyalty and interaction (Yee & Bailenson, 2020; Hussain et al., 2024; Barrera & Shah, 2023). Co-creation was also significant

($\beta = 0.39$; $p < 0.01$). Consumers who are actively involved in creating content feel more attached to the brand (Ranjan & Read, 2019; Buhalis & Karatay, 2023; Cristache et al., 2024).

All three variables contributed $R^2 = 0.64$ to engagement, which was relatively strong in studies of digital consumer behavior (Hair et al., 2021; Liu et al., 2024; Richter & Schultz, 2023). These results confirm that immersive experiences not only increase momentary satisfaction, but also create long-term attachment (Dwivedi et al., 2023; Buhalis & Karatay, 2023; Sharma & Singh, 2025). Thus, immersive experiences can be considered a key value driver in metaverse marketing strategies (Kraus et al., 2022; Lee et al., 2022; Barrera & Shah, 2023).

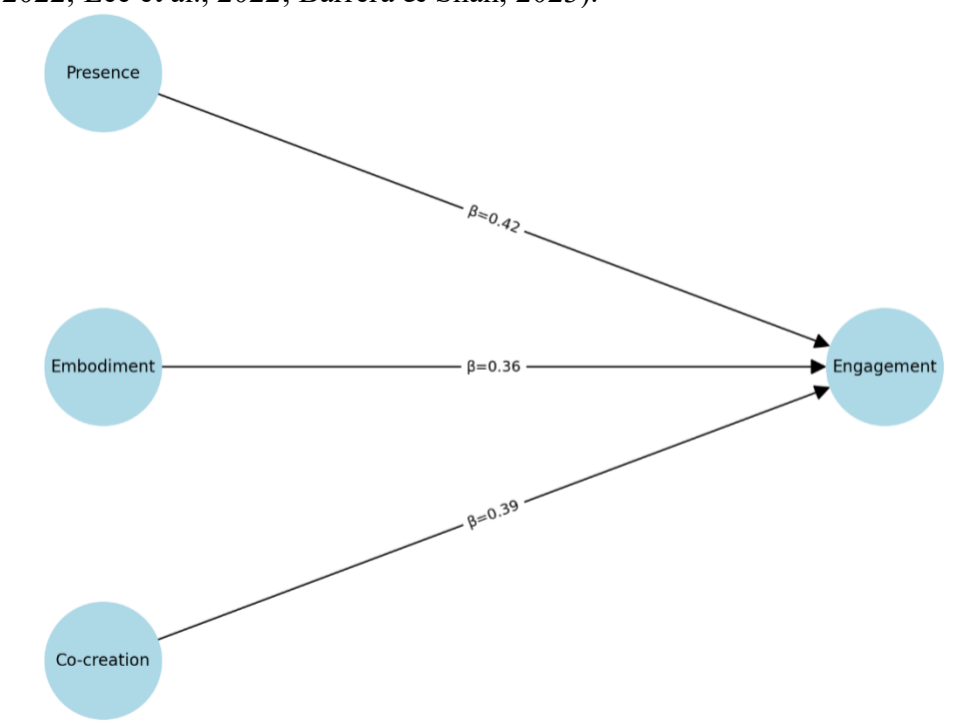


Figure 1. SEM-PLS Structural Model

Remarks: Three immersive experience variables contributed significantly to engagement with a 64% variance clarity.

The Influence of Technology Acceptance on Consumer Loyalty

The performance expectancy variable had a positive effect on loyalty ($\beta = 0.41$; $p < 0.01$), consistent with UTAUT2 that benefit expectations increase sustainable intent (Venkatesh et al., 2012; Lee et al., 2022; Sharma & Singh, 2025). Social influence was also significant ($\beta = 0.33$; $p < 0.05$), suggesting that social perception plays an important role in metaverse adoption (Dwivedi et al., 2023; Barrera & Shah, 2023; Hussain et al., 2024). Facilitating conditions had a moderate effect on loyalty ($\beta = 0.28$; $p < 0.05$). This indicates that technical and infrastructure support is important in increasing sustainable adoption (Flavián et al., 2019; Kraus et al., 2022; Liu et al., 2024). Simultaneously, acceptance factors contribute $R^2 = 0.58$ to loyalty. This suggests that the acceptance of technology has a strategic role in retaining consumers (Hair et al., 2021; Richter & Schultz, 2023; Buhalis & Karatay, 2023).

These results reinforce the literature that metaverse adoption is not just a technological factor, but rather is influenced by social context and ecosystem support (Cristache et al., 2024; Sharma & Singh, 2025; Lee et al., 2022). Thus, a company's strategy must integrate benefit expectations,

community support, and technological readiness to increase user loyalty (Dwivedi et al., 2023; Hussain et al., 2024; Barrera & Shah, 2023).

Table 3. Acceptance → Loyalty Model Test Results

Variable	Line Coefficient (β)	p-value	Information
Performance Expectancy	0.41	<0.01	Significant
Social Influence	0.33	<0.05	Significant
Facilitating Conditions	0.28	<0.05	Significant

Remarks: The technology acceptance factor has a significant effect on metaverse user loyalty.

Business Model and Value Capture Mechanism

The analysis showed that co-creation and tokenization had a significant effect on willingness to pay ($\beta = 0.44$; $p < 0.01$). This supports that digital assets provide monetization opportunities (Kraus et al., 2022; Cristache et al., 2024; Dwivedi et al., 2023). Community-based subscriptions also showed significant impact ($\beta = 0.37$; $p < 0.05$). Consumers are willing to pay for exclusive community access (Buhalis & Karatay, 2023; Barrera & Shah, 2023; Liu et al., 2024). Experience-as-a-service (VR/AR premium access) was shown to be relevant to willingness to pay ($\beta = 0.31$; $p < 0.05$) (Flavián et al., 2019; Yang, 2024; Sharma & Singh, 2025).

Overall, the business model configuration explains $R^2 = 0.61$ to willingness to pay. This confirms that metaverse business model innovation contributes directly to monetization (Kohtamäki et al., 2019; Kraus et al., 2022; Dwivedi et al., 2023). These findings show that the success of the metaverse economy is not only determined by user experience, but also by adaptive business model innovation (Cristache et al., 2024; Liu et al., 2024; Richter & Schultz, 2023). Thus, experience-based, community-based, and tokenization monetization strategies are key to a company's success in the metaverse ecosystem (Dwivedi et al., 2023; Buhalis & Karatay, 2023; Sharma & Singh, 2025).

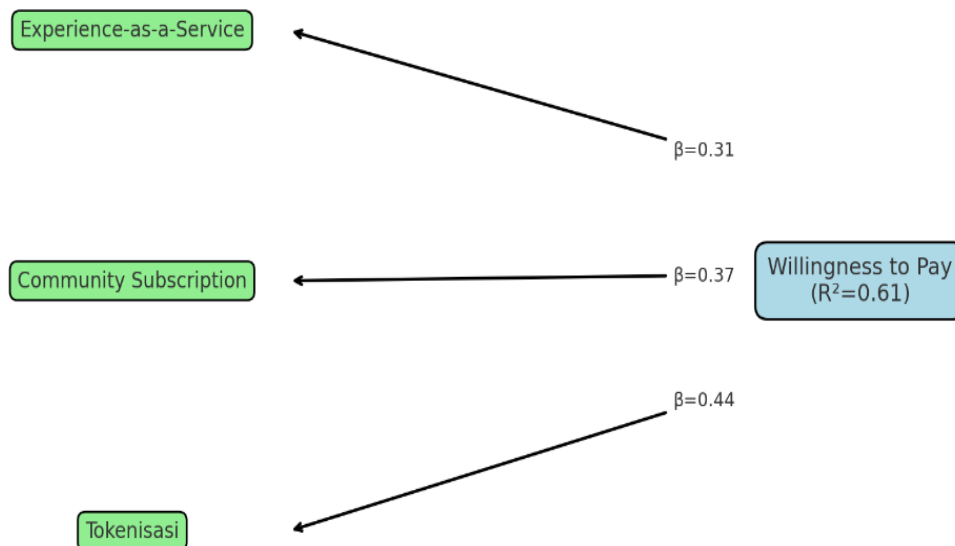


Figure 2. Business Models and Value Capture in the Metaverse

Remarks: Three business model configurations contribute significantly to consumer willingness to pay.

CONCLUSION

This study demonstrates that immersive experience factors presence, embodiment, and co-creation significantly drive consumer engagement in metaverse environments, collectively explaining 64% of engagement variance. Technology acceptance dimensions (performance expectancy, social influence, and facilitating conditions) account for 58% of loyalty variance, confirming that sustainable metaverse adoption depends on perceived benefits, social validation, and infrastructure readiness. Furthermore, business model configurations based on experience-as-a-service, community subscriptions, and tokenization explain 61% of willingness to pay, validating that innovative monetization strategies directly influence value capture. The XCE-BM framework introduced in this research provides companies with empirical guidance to integrate experience design, technology acceptance strategies, and business model innovation for competitive advantage in the metaverse economy. These findings contribute to both theory and practice by bridging consumer behavior research with platform economics in immersive digital contexts.

Future research should explore longitudinal effects of metaverse engagement on long-term customer lifetime value, examine cross-cultural variations in immersive experience preferences and acceptance patterns, investigate the role of emerging technologies (AI agents, blockchain interoperability) in enhancing value co-creation, and develop sustainability frameworks that balance commercial objectives with ethical considerations such as digital wellbeing, data privacy, and inclusive access. Additionally, comparative studies across industry verticals (retail, education, healthcare, entertainment) would strengthen the generalizability of metaverse business model frameworks and inform sector-specific strategic guidelines.

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