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From Banking Halls to Virtual Halls: A Conceptual Framework on How Intrinsic and Extrinsic Factors Drive Real-World Purchase Intention and Decisions in the Metaverse

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Abstract

This study proposes a conceptual framework to investigate the factors influencing real-world purchase intention and purchase decisions within the metaverse, with a particular focus on Bank BTN's Virtual Expo. Integrating Self-Determination Theory (SDT) and Stimulus-Organism-Response (S-O-R) Theory, the model posits that perceived usefulness and trust in the platform as external stimuli that affect psychological responses, including perceived relatedness, perceived competence, and perceived autonomy. These psychological constructs are hypothesized to influence users' identification with the metaverse (Metaverse Identification), which in turn drives their purchase intention and decision-making in the real world. This framework contributes to the theoretical advancement of SDT and S-O-R by adapting them to immersive digital contexts and introduces Metaverse Identification as a key mediating variable. Managerially, the model offers strategic insights for platform developers and marketers aiming to foster deeper user engagement and conversion within virtual environments. While this study remains conceptual, it lays the groundwork for future empirical testing in the context of immersive commerce.

Keywords: Self-Determination Theory, S-O-R Theory, Metaverse, Virtual Expo.

1. Introduction

In recent years, the rapid digital transformation has paved the way for innovative technological paradigms, among which the **metaverse** stands out as a groundbreaking evolution of the internet. Defined as an immersive and personalized digital space powered by virtual reality (VR), augmented reality (AR), artificial intelligence (AI), and blockchain technologies, the metaverse facilitates real-time social, economic, and cultural interactions within three-dimensional environments (Mystakidis, 2022). Originally conceptualized by Neal Stephenson (1992) as a virtual realm for human interaction, the metaverse has garnered tremendous interest following significant investments by global technology giants such as Meta, Microsoft, and Google (Grider, 2021).

The economic potential of the metaverse is staggering. Projections indicate the metaverse market could surge from USD 83.9 billion in 2023 to over USD 1.3 trillion by 2030, with a compound

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annual growth rate (CAGR) of 48% driven by expanding adoption of AR, VR, and integration across various industries including finance (MarketsandMarkets, 2023; Statista, 2024). The banking sector, in particular, is actively exploring metaverse applications, exemplified by JPMorgan Chase's virtual lounge in Decentraland and other global banks' ventures into digital branches (McKinsey & Company, 2022; Morgan, 2022). These initiatives aim to enhance customer experience, engagement, and operational efficiency through immersive, avatar-based services (Sharma, 2024).

In Indonesia, the digital transformation momentum is equally robust. With internet penetration reaching 77% of the population (We Are Social, 2024), and government initiatives like the Indonesia Digital Roadmap 2024 encouraging blockchain and metaverse adoption (Kominfo & Bank Indonesia), local banks such as Bank BTN have begun integrating virtual experiences into their business strategies. BTN's Virtual Expo is a pioneering platform allowing customers to explore property offerings and conduct financing activities within a virtual environment, catering especially to digitally savvy young adults aged 21–40 (PT Bank Tabungan Negara (Persero) Tbk., 2023).

Understanding consumer behavior in such immersive environments requires robust theoretical foundations. The **Self-Determination Theory (SDT)** highlights intrinsic motivation factors—perceived autonomy, competence, and relatedness—as key drivers of engagement and behavioral intentions in digital contexts (Khan et al., 2023; Park et al., 2019). Concurrently, the **Stimulus-Organism-Response (S-O-R) Theory** provides a valuable lens to examine how environmental stimuli, such as perceived usefulness and trust in digital platforms, affect users' psychological states and subsequent behavioral responses (L. Zhang et al., 2024). Recent studies have further shown that **metaverse identification**, or the degree to which users psychologically connect with their virtual avatars and environments, mediates these relationships and strengthens real-world purchase intentions and decisions (H. Zhang et al., 2025).

Despite these advancements, a research gap remains regarding how intrinsic motivation and technology perceptions collectively influence real-world buying behaviors through metaverse experiences, particularly in the banking and property sectors within emerging markets like Indonesia. This study seeks to bridge that gap by integrating SDT and S-O-R theories to conceptualize a framework explaining how perceived usefulness, trust, and intrinsic motivation shape metaverse identification, which in turn drives purchase intention and decision in the context of Bank BTN's Virtual Expo.

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2. Literature Review

Self-Determination Theory (SDT). Self-Determination Theory (SDT), developed by Ryan & Deci (2017), is one of the most influential motivational theories in contemporary psychology. It posits that human motivation is driven by the fulfillment of three basic psychological needs: autonomy, competence, and relatedness. When these needs are satisfied, individuals experience greater intrinsic motivation, which leads to sustained and authentic engagement in various activities, including consumer behavior in digital environments. SDT differentiates between intrinsic motivation, which stems from internal satisfaction, and extrinsic motivation, which is influenced by external rewards or pressures. However, SDT emphasizes the importance of intrinsic motivation as the foundation for meaningful actions. Empirical studies, such as those by Khan et al. (2023), Park et al. (2019), and Zhao et al. (2024), confirm the significant role of SDT in explaining consumer intentions and behaviors, particularly in technologically mediated settings like the metaverse.

Stimulus-Organism-Response (S-O-R) Theory. The Stimulus-Organism-Response (S-O-R) Theory, introduced by Mehrabian & Russell (1974), explains how external stimuli influence internal psychological states (organisms), which in turn lead to behavioral responses. In consumer behavior, especially within digital and metaverse contexts, this theory helps clarify how elements such as interface design, platform trust, and perceived usefulness affect users' internal engagement and emotional states, ultimately shaping their purchase intentions and decisions. For instance, Payal et al. (2024) and H. Zhang et al. (2025) found that technological stimuli such as trust in the platform and immersive experiences impact users' psychological identification with the metaverse (organism), which then enhances real-world purchase intentions (response). The S-O-R framework thus offers a comprehensive model to understand consumer reactions to digital stimuli through internal cognitive-affective mechanisms.

Perceived Usefulness and Trust on Platform. Perceived Usefulness (PU) refers to the extent to which users believe that a digital platform, such as the metaverse, enhances their efficiency, decision-making, and overall experience when exploring or purchasing products (Davis et al., 1989; Prabakaran & Patrick, 2024). When users perceive a platform as useful, they are more likely to engage with it, as it adds tangible value to their goals. Trust in the Platform (TP), on the other hand, reflects the users' confidence in the reliability, safety, and ethical practices of the platform. It IIes trust In the system, processes, and the Institution behind the platform (Putri et al., 2023; Sari et al., 2020). Trust mitigates perceived risks such as data misuse or system failures and plays a critical role in driving both purchase intentions and actual decisions. Together, perceived usefulness and trust form essential components of the stimulus in the S-O-R framework and influence how users interact with and respond to digital environments.

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Perceived Relatedness, Perceived Competence, Perceived Autonomy. These three constructs are the core dimensions of Self-Determination Theory (SDT). Perceived Relatedness refers to an individual's sense of connection, acceptance, and belonging within a digital community. In metaverse platforms, this manifests through meaningful interactions with avatars, virtual agents, or other users (Khan et al., 2023). Perceived Competence reflects the user's belief in their ability to effectively navigate and utilize digital tools, which enhances engagement and intention to act (Park et al., 2019). Perceived Autonomy is the feeling of having control and freedom to make decisions without external pressure. In digital environments, it signifies the user's capacity to explore and make choices independently (Ryan & Deci, 2017). Together, these needs foster intrinsic motivation, deeper involvement, and greater willingness to make purchase decisions in immersive environments.

Metaverse Identification. Metaverse Identification (MI) refers to the degree to which users emotionally and cognitively associate themselves with the metaverse environment. It reflects a sense of belonging and self-alignment with the virtual world, where users do not merely interact with the platform but internalize it as part of their identity. According to Payal et al.(2024) and H. Zhang et al. (2025), when users identify with the metaverse, they experience stronger affective engagement and are more likely to translate their virtual experiences into real-world behaviors, such as forming purchase intentions. MI plays a mediating role in the S-O-R framework, bridging the influence of external stimuli (like trust and usefulness) with behavioral responses.

Real-World Purchase Intention and Decision. Real-World Purchase Intention (RWPI) is the user's expressed willingness to engage in actual buying behavior following interactions within a digital or metaverse platform. It represents a crucial psychological step that translates immersive virtual experiences into potential economic actions (Prabakaran & Patrick, 2024). Purchase Decision (PD), meanwhile, is the final behavioral outcome where the user executes a transaction based on prior intention and experience within the metaverse. This decision is shaped by multiple factors, including perceived usefulness, trust, metaverse identification, and the satisfaction of psychological needs (Putri et al., 2023; Sari et al., 2020). Together, RWPI and PD serve as key behavioral responses in the S-O-R model, illustrating how digital experiences influence tangible purchasing behavior.

These hypotheses aim to assess how constructs derived from Self-Determination Theory (SDT) and external factors such as perceived usefulness and trust in the platform influence users' identification with the metaverse and how such identification impacts their real-world purchase intentions and decisions.

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Perceived usefulness (PU) refers to the extent to which individuals believe that using a specific technology enhances their performance or productivity (Davis et al., 1989). In the context of the metaverse, the perceived usefulness of a platform may foster user engagement and shape their identification with the virtual world. Prior research shows that PU positively affects trust, attitudes, and purchase intentions on digital platforms (Primananda et al., 2020; H. Zhang et al., 2025). Therefore, the first hypothesis is formulated as follows:

H1: Perceived usefulness (PU) significantly influences metaverse identification (MI).

Trust in platform (TP) represents users' confidence in the safety, reliability, and integrity of a digital platform. Strong trust in a metaverse platform is believed to enhance users' sense of attachment to the virtual environment. Previous studies indicate that trust plays a crucial role in fostering user engagement and loyalty (Prabakaran & Patrick, 2024; Ventre & Kolbe, 2020). Hence, the second hypothesis is:

H2: Trust in the platform (TP) significantly influences metaverse identification (MI).

Perceived relatedness (PR)—a core dimension of SDT—refers to individuals' sense of social connection and positive interpersonal relationships. In the socially interactive nature of the metaverse, PR can facilitate users' identification with virtual communities. Studies by Hwang (2022) and Renganathan et al. (2025) emphasize the importance of social bonds in shaping digital platform identification. Therefore, the third hypothesis is:

H3: Perceived relatedness (PR) significantly influences metaverse identification (MI).

Perceived competence (PC) reflects users' beliefs in their ability to effectively interact with and master tasks within a digital context. In the complex and dynamic metaverse environment, individuals who perceive themselves as competent are more likely to engage and identify with the platform (Hwang, 2022; Zhao et al., 2024) Hence, the fourth hypothesis is:

H4: Perceived competence (PC) significantly influences metaverse identification (MI).

Perceived autonomy (PA) describes the extent to which individuals feel that their actions are self-directed and free from external pressure. According to SDT, autonomy is a fundamental component that fosters intrinsic engagement and identity formation. In the metaverse context, greater perceived freedom enhances the likelihood of identification with the virtual environment (Hwang, 2022; Park et al., 2019). Thus, the fifth hypothesis is:

H5: Perceived autonomy (PA) significantly influences metaverse identification (MI).

Metaverse identification (MI) refers to the degree to which users feel part of or represented within the metaverse environment. Such identification can lead to emotional attachment that influences

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economic behaviors, including the intention to purchase products or services introduced in the platform. Previous studies have shown that identification with virtual worlds positively affects real-world purchase intentions (Prabakaran & Patrick, 2024; H. Zhang et al., 2025). Therefore, the sixth hypothesis is:

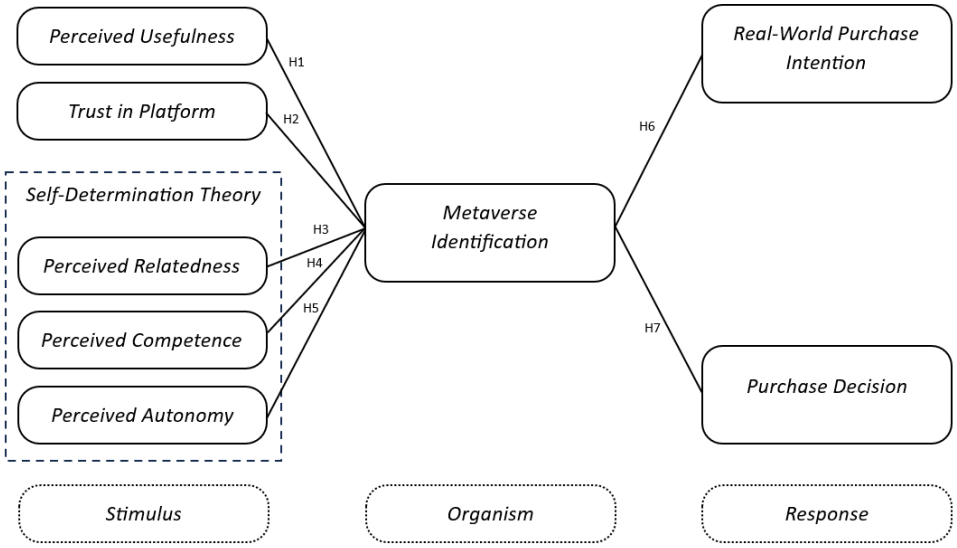
H6: Metaverse identification (MI) significantly influences real-world purchase intention (RWPI).

Lastly, identification with the metaverse is expected to impact not only intention but also actual purchasing decisions. When users strongly identify with the metaverse, their perceived value of products increases, motivating them to make real purchases (H. Zhang et al., 2025). Accordingly, the final hypothesis is:

H7: Metaverse identification (MI) significantly influences purchase decision (PD).

The Conceptual Framework - This study aims to analyze the factors influencing Real-World Purchase Intention (RWPI) and Purchase Decision (PD) within the metaverse environment, specifically in the context of the Virtual Expo BTN. The research integrates two complementary theoretical approaches: Self-Determination Theory (SDT) and the Stimulus-Organism-Response (S-O-R) Theory.

Figure 1. Propose Research Model Adapted From Hwang (2022), Novitasari & Hidayati, (2023), and H. Zhang et al. (2025)



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Within the S-O-R framework, *perceived usefulness* and *trust in the platform* are positioned as external stimuli that can trigger users' internal psychological responses. Meanwhile, Self-Determination Theory highlights the role of intrinsic motivation, consisting of three key dimensions—*perceived relatedness*, *perceived competence*, and *perceived autonomy*—as psychological mechanisms that shape user engagement and identification within digital experiences. *Metaverse identification (MI)* represents the internalization process in which users psychologically connect with the virtual environment. This identification is assumed to directly influence both *real-world purchase intention* and *actual purchase decision*. Altogether, the proposed model comprehensively explains how technological perceptions and psychological motivations interact to shape purchasing intentions and decisions within the metaverse context.

3. Research Method

This study explores consumer behavior within a virtual banking environment, specifically focusing on the Virtual Expo platform of Bank BTN. The scope of the research includes both theoretical and empirical boundaries—ranging from the application of Self-Determination Theory (SDT) and Stimulus-Organism-Response (S-O-R) Theory to the Indonesian metaverse banking context. The subjects of analysis are individual users who have interacted with Virtual Expo BTN, particularly millennials and Gen Z aged between 21 and 40. The temporal scope is confined to the most recent user interactions within the past year, while the technological context centers on immersive digital tools such as 3D property tours, virtual consultations, and housing loan simulations. This research adopts a **quantitative approach using a survey method**, aiming to test the direct and indirect effects of perceived usefulness, trust in the platform, and intrinsic motivations (perceived autonomy, competence, and relatedness) on metaverse identification and its influence on real-world purchase intention and decision. A **quantitative survey method** involves the systematic collection of numerical data through structured questionnaires to examine the relationships among variables as they naturally occur, without any manipulation or control over the research environment. According to Sugiyono (2023), quantitative research is rooted in positivism, emphasizing objective and empirical measurement of phenomena using statistical tools. The survey method is particularly suitable for studies that seek to explore complex behavioral models across a larger population in a real-world context. In this study, **Partial Least Squares Structural Equation Modeling (PLS-SEM)** is used as the main analytical technique to test both **direct and indirect effects** among constructs, as well as **moderating effects**, by modeling interaction terms using product indicators or the two-stage approach. This enables a comprehensive analysis of the hypothesized relationships, while also accommodating latent variables and small to moderate sample sizes. The use of a survey-based PLS-SEM approach allows for a robust validation of the

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proposed research model within a natural setting, making it suitable for investigating consumer behavior in the metaverse context (Ghozali & Kusumadewi, 2023).

The with the digital nature of the Virtual Expo BTN platform. This platform, developed by Bank BTN, simulates a property exhibition using metaverse technologies and serves as a strategic tool to reach younger, tech-savvy consumers. Data will be collected via digital surveys distributed through the bank's social media channels, online forums, and property developer partners. While the research does not take place in a physical setting, its geographic scope spans across Indonesia, covering users with access to the Virtual Expo platform regardless of their location.

The **unit of analysis** in this study is the individual—specifically, Bank BTN's customers or potential customers who have used the Virtual Expo BTN platform. As suggested by Neuman (2014), the unit of analysis refers to the "what or who being studied". The selected individuals must meet the following criteria: aged 21–40 years, have accessed the Virtual Expo platform, and are willing to complete the survey accurately and honestly.

The sample is drawn using purposive sampling, selecting individuals who meet specific inclusion criteria: being in the target age range, having prior exposure to the platform, and demonstrating an interest in property or mortgage services. Based on recommendations from Ghozali & Kusumadewi (2023), Partial Least Squares Structural Equation Modeling (PLS-SEM) does not require large sample sizes. However, for a model involving multiple latent constructs and endogenous variables, a minimum of 100 respondents is set, with an ideal range of 150–200 to improve model robustness and generalizability.

This study defines **research variables** based on theoretical constructs derived from SDT and S-O-R frameworks. According to Sugiyono (2023), variables are attributes or characteristics that can vary and be measured. The independent variables include perceived usefulness, trust in the platform, perceived autonomy, competence, and relatedness. The mediating variable is metaverse identification, while the dependent variables are real-world purchase intention and purchase decision. Each variable is operationalized using validated measurement indicators adapted from prior empirical research, enabling quantitative testing of hypotheses and causal relationships within the digital consumer experience.

A **quantitative survey method** is employed to examine the relationships among multiple independent variables—such as perceived usefulness, trust in the platform, and intrinsic motivation (comprising perceived autonomy, competence, and relatedness)—and outcome variables like metaverse identification, real-world purchase intention, and purchase decision. This method allows researchers to capture naturally occurring perceptions, attitudes, and behaviors

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from respondents without manipulating any variables, making it suitable for studying complex behavioral models in real-world contexts.

To analyze the collected data, **Partial Least Squares Structural Equation Modeling (PLS-SEM)** is applied. According to Ghozali & Kusumadewi (2023), PLS-SEM is a variance-based statistical method that is ideal for exploratory research, complex theoretical model testing, and data that do not follow a strict normal distribution. Compared to Covariance-Based SEM (CB-SEM), PLS-SEM provides several advantages, including no requirement for multivariate normality, the ability to handle models with many latent constructs and indicators, and suitability for small to moderate sample sizes (typically ranging from 30 to 100 cases).

PLS-SEM also enables the examination of both **direct and indirect relationships**, as well as **moderating effects**, by modeling interaction terms using either the product indicator or two-stage approach. This makes it possible to explore **conditional effects**—such as how metaverse identification may influence the strength of the relationship between intrinsic motivation and purchase intention—even in a non-experimental, survey-based research setting. Thus, the integration of a survey design with PLS-SEM offers a robust analytical approach for validating the proposed research model and uncovering complex causal mechanisms within the metaverse context.

The data analysis in this study follows these stages: (1) *Preliminary Data Processing* - Preliminary data processing ensures that the data are clean and ready for statistical analysis. Data collected through online questionnaires are first reviewed for completeness and filtered to eliminate incomplete, duplicate, or ineligible responses (e.g., respondents outside the age or user experience criteria). Outlier detection is then conducted both univariately (extreme values of individual variables) and multivariate (atypical combinations of variables), using methods such as z-scores, scatter plots, and, if necessary, Mahalanobis distance. Responses are converted into numeric format and input into SmartPLS 4 software for further analysis. This stage also includes formatting the dataset, reverse coding if applicable, grouping indicators by variables, and preparing the structure for SmartPLS input. The quality of this step determines the reliability of subsequent analyses, ensuring that the data used for outer and inner model evaluation are valid and aligned with the conceptual framework. (2) *Measurement Model Evaluation (Outer Model)* - The outer model assesses the quality of latent constructs based on their indicators, involving: (a) *Convergent Validity Test* - This test evaluates the degree to which indicators of a construct collectively explain the construct. In PLS-SEM, it is assessed using outer loading, Average Variance Extracted (AVE), and t-statistics from bootstrapping. Indicators are considered valid if their outer loading exceeds 0.70 (or 0.60 in exploratory research). An AVE value of 0.50 or higher indicates that more than 50% of indicator variance is captured by the latent variable, reflecting strong internal consistency.

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(b) *Discriminant Validity Test* - Discriminant validity confirms that constructs are empirically distinct from one another. It is assessed using Fornell-Larcker criterion (the square root of AVE should be greater than inter-construct correlations) and cross-loading (indicators should load higher on their own construct than on others). If these conditions are met, the constructs are considered distinct and non-overlapping. (c) *Construct Reliability Test* - Construct reliability measures the internal consistency of indicators using Cronbach's Alpha and Composite Reliability (CR). Values above 0.70 are considered acceptable. CR is preferred as it accounts for indicator weights. High reliability suggests the construct is stable and appropriate for further analysis.

Structural Model Evaluation (Inner Model) - The structural model tests the relationships among latent constructs by examining: (a) *Coefficient of Determination (R^2)* - R^2 assesses the proportion of variance in endogenous constructs explained by exogenous constructs. Values of 0.67 (strong), 0.33 (moderate), and 0.19 (weak) are used for interpretation. In this study, R^2 is used to determine how well constructs like Metaverse Identification, Real-World Purchase Intention, and Purchase Decision are explained by predictors such as perceived usefulness and psychological motivation. (b) *Path Coefficient and Significance Test* - Path coefficients indicate the strength and direction of relationships among constructs. Bootstrapping (typically 5,000 resamples) is used to assess significance via t-statistics and p-values. A path is considered significant if $t > 1.96$ at a 5% significance level ($p < 0.05$). This helps test hypotheses, such as the effect of perceived usefulness on metaverse identification or the effect of metaverse identification on purchase decisions. (c) *Mediation Test (Indirect Effect)* - This test examines whether a mediating variable (e.g., Metaverse Identification) bridges the relationship between independent and dependent variables. Bootstrapping is used to evaluate indirect effects. Depending on the significance of direct and indirect paths, mediation can be full, partial, or spurious. This study investigates whether Metaverse Identification mediates the influence of perceived usefulness, trust, and psychological motivation on purchase intentions and decisions. (d) *Predictive Relevance Test (Q^2)* - Stone-Geisser's Q^2 measures the predictive ability of the structural model through blindfolding. A $Q^2 > 0$ indicates predictive relevance, while $Q^2 \leq 0$ suggests a lack of predictive power. In this study, Q^2 assesses how well constructs like purchase intention and decision can be predicted by the model beyond statistical significance.

This research uses SmartPLS 4, a statistical software tool designed for PLS-SEM analysis. It is chosen due to its effectiveness in handling complex models with many latent variables and indicators, even with small sample sizes and non-normally distributed data. According to Schiffman & Kanuk (2024), SmartPLS is well-suited for both confirmatory and exploratory research and enables simultaneous evaluation of the measurement and structural models. Additionally, it provides automatic visualizations and statistical outputs, making it ideal for

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analyzing the relationships among technology perceptions, psychological motivation, metaverse identification, and consumer purchase behaviors in this study.

4. Finding and Discussion

Theoretical Implications - This study provides significant theoretical contributions by extending established behavioral theories into the emerging context of the metaverse. First, it advances the application of Self-Determination Theory (SDT) in digital environments by emphasizing how virtual spaces can fulfill users' basic psychological needs—perceived relatedness, perceived competence, and perceived autonomy—through intentional design features. As Ryan & Deci (2000) argue, the satisfaction of these needs is essential for fostering intrinsic motivation, and in the context of the metaverse, these needs can be facilitated via interactive, customizable, and socially rich environments that simulate real-life social and cognitive engagement (Hwang, 2022; Zhao et al., 2024). Second, this study recontextualizes the Stimulus-Organism-Response (S-O-R) Theory by examining how external stimuli—namely perceived usefulness and trust in the platform—serve as technological cues that influence internal psychological states, which in turn lead to purchase-related behavioral outcomes. This adaptation of the S-O-R framework into immersive commerce expands our understanding of consumer behavior within virtual platforms, aligning with earlier research that highlights the role of trust and perceived utility in influencing consumer intention and loyalty (Prabakaran & Patrick, 2024; Ventre & Kolbe, 2020). Finally, this research introduces Metaverse Identification (MI) as a novel mediating construct that links motivational processes with behavioral intentions. MI reflects the extent to which users internalize the virtual environment as part of their self-concept, thus enabling stronger emotional and cognitive ties to the platform. This conceptualization is consistent with identity-based consumer behavior theories, suggesting that when users identify with a platform, they are more likely to form real-world purchase intentions and make actual purchase decisions (H. Zhang et al., 2025). Collectively, these contributions underscore the theoretical robustness and interdisciplinary relevance of the proposed framework in explaining user behavior in metaverse-based commercial settings.

Practical Implications - From a managerial perspective, the proposed conceptual model offers strategic guidance for firms operating in immersive digital ecosystems such as the metaverse. First, **platform and experience design** should be grounded in user-centric principles that cater to the fulfillment of psychological needs—namely **relatedness, competence, and autonomy**—as outlined by Self-Determination Theory (Deci & Ryan, 2000). Metaverse developers and digital experience designers are encouraged to incorporate interactive social features (e.g., real-time communication, avatars, and virtual communities), challenge-based tasks, and customizable interfaces that provide users with a sense of mastery and control. These elements can significantly

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enhance user **engagement** and **identification** with the virtual platform (Hwang, 2022). Second, **perceived usefulness** and **trust the in platform** should be viewed as crucial marketing levers. Organizations must ensure that their platforms deliver both functional utility and a high level of system integrity—including data protection, reliability, and user support—as trust is a prerequisite for sustained engagement and conversion in digital environments (Prabakaran & Patrick, 2024; Ventre & Kolbe, 2020). Third, the emergence of **Metaverse Identification (MI)** as a mediating factor suggests that identity-oriented strategies may be effective in strengthening user-brand relationships. Companies should consider tailoring virtual content and brand narratives to resonate with users' values, aspirations, and digital identities. Personalized experiences that affirm the user's sense of self in virtual environments may increase **emotional attachment**, foster **brand loyalty**, and ultimately enhance **purchase intentions and decisions** (H. Zhang et al., 2025; Zhao et al., 2024). In essence, the metaverse is not only a technological innovation but also a psychological and cultural space that requires a nuanced approach to user engagement and digital commerce.

Managerial Recommendations - For institutions such as Bank BTN that are exploring innovative channels for marketing and service delivery through the metaverse, the proposed conceptual model offers several practical implications. First, enhancing **social interactivity** within virtual environments—such as hosting virtual expos, networking sessions, or community-driven events—can significantly foster **perceived relatedness**, a critical psychological need as proposed by Self-Determination Theory (Ryan & Deci, 2000). These social features encourage users to feel connected and emotionally embedded within the platform. Second, improving **system intuitiveness** through streamlined user interfaces, onboarding tutorials, and real-time assistance can promote **perceived competence**, helping users feel capable and confident in navigating complex digital landscapes (Zhao et al., 2024). Third, allowing **user customization**—such as personalized avatars, adjustable virtual settings, and user-defined decision pathways—enhances **perceived autonomy**, reinforcing users' sense of control and ownership over their virtual experience (Park et al., 2019). Furthermore, building **trust in the platform** is essential. This can be achieved by integrating visible security measures (e.g., SSL indicators), clear data privacy policies, and third-party verifications, all of which reassure users about the platform's credibility and reliability (Ventre & Kolbe, 2020). Lastly, to elevate **perceived usefulness**, institutions should align digital interactions with real-world outcomes. For example, simulating mortgage processes, offering financial literacy tutorials, or enabling virtual consultations can highlight how digital engagement translates into tangible financial value (Prabakaran & Patrick, 2024). By strategically addressing these psychological and functional dimensions, Bank BTN can strengthen user identification with its metaverse platforms and ultimately drive real-world consumer behavior.

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This conceptual study is not without its limitations, which must be acknowledged to guide future empirical and theoretical advancements. First, the proposed framework is developed solely from theoretical synthesis and lacks empirical validation. As such, the hypothesized relationships among constructs—such as the influence of perceived usefulness or psychological needs on metaverse identification and purchase behavior—remain speculative until tested through real-world data. Second, the model is specifically tailored to the context of a metaverse-based virtual expo in the banking sector, particularly focusing on Bank BTN. This narrow contextual focus may constrain the generalizability of findings to other sectors, such as retail, education, or entertainment, where user motivations and technological interactions might differ significantly. Third, the dynamic and rapidly evolving nature of metaverse technologies presents a further limitation. The constructs utilized in this study, including perceived autonomy or trust in the platform, may be affected by future developments in immersive interfaces, artificial intelligence, or blockchain integration. As the technological landscape advances, theoretical models such as this one may require timely revisions to maintain their relevance and applicability in increasingly sophisticated digital ecosystems.

5. Conclusion

This conceptual study presents an integrative framework that combines Self-Determination Theory (SDT) and the Stimulus-Organism-Response (S-O-R) model to explain how psychological and technological factors influence real-world purchase intention and decision-making within metaverse environments, specifically in the context of Bank BTN's virtual expo. By positioning perceived usefulness and trust as external stimuli, and perceived relatedness, competence, and autonomy as intrinsic motivators, the model introduces Metaverse Identification (MI) as a key mediating variable that captures users' internalization of virtual experiences into real-world consumer behavior. The study contributes theoretically by extending SDT to immersive digital platforms, recontextualizing the S-O-R framework for virtual commerce, and highlighting MI as a novel mechanism linking user experience to behavioral outcomes. Practically, it offers strategic insights for platform developers and institutions like Bank BTN to enhance engagement through personalized, secure, and socially rich metaverse features. However, the absence of empirical validation, context specificity to the banking sector, and the evolving nature of metaverse technologies present limitations that future research should address. Overall, this framework lays a foundation for understanding digital consumer behavior in immersive environments and invites further empirical investigation.

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