

## **VIRTUAL VOYAGES: IDENTIFYING BARRIERS AFFECTING GEN Z AND GEN Y SATISFACTION IN METAVERSE TOURISM**

**Amron<sup>1</sup>, Ali Mursid<sup>2</sup>, Entot Suhartono<sup>3\*</sup>**

<sup>1,3\*</sup> Faculty of Economics and Business, Dian Nuswantoro University, Semarang, Indonesia

<sup>2</sup> School of Economics and Business Bank BPD Jateng, Semarang, Indonesia

\*Corresponding Author: [entot.suhartono@dsn.dinus.ac.id](mailto:entot.suhartono@dsn.dinus.ac.id)

**Abstract:** This study investigates the impact of various inhibiting factors on the intentions and overall satisfaction of Generation Z and Y virtual tourists engaging with WonderVerse Indonesia, a metaverse-based tourism platform. Using covariance-based structural equation modeling (CB-SEM), the research tests five hypotheses, focusing on how perceived complexity, cost, and technological and social threats influence user behavior. The findings reveal that perceived complexity, high costs, and concerns over technological and social threats significantly decrease users' intentions to engage with the platform. However, when users have stronger intentions to engage, their overall satisfaction with the virtual tourism experience increases significantly. These results provide key insights into the barriers hindering user adoption of metaverse tourism, particularly among younger generations. By identifying these factors, the study offers valuable guidance for managers, developers, and decision-makers in the metaverse tourism industry. It highlights the need to reduce perceived complexity and mitigate costs and perceived threats to enhance user engagement. Furthermore, the study emphasizes the importance of strengthening user intentions to boost satisfaction. These insights are crucial for improving the design and marketing strategies of virtual tourism platforms like WonderVerse Indonesia to ensure their long-term success and relevance in the rapidly evolving digital tourism landscape.

**Keywords:** Metaverse, Satisfaction, Virtual tourism, WonderVerse Indonesia

### **1. Introduction**

The rapid expansion of the Metaverse has created significant opportunities for the tourism industry, with the global market expected to reach \$800 billion by 2024, up from \$47 billion in 2020 (Chakraborty et al., 2024). This digital landscape offers immersive experiences that enhance destination marketing, attracting wider audiences through virtual tourism, shopping, and social interactions (Buhalis et al., 2023; Gursoy et al., 2022). Metaverse platforms provide innovative marketing tools, presenting destinations in immersive ways while collecting valuable data on user behavior to inform future tourism strategies (Chon & Hao, 2024; Dwivedi et al., 2023). Furthermore, these platforms encourage collaboration among tourism stakeholders, promoting the co-creation of personalized travel experiences (Agnihotri et al., 2024; Chen et al., 2023), thus revolutionizing how travelers engage with destinations (Gursoy et al., 2022; Kaplan & Haenlein, 2024).

Prior research has identified several key factors influencing Metaverse platform adoption, including perceived usefulness, ease of use, and emotional attachment (Wu & Yu, 2024; Zhang et al., 2024). Emotional connections and positive user experiences have been found to enhance engagement, while subjective norms and perceived behavioral control also play a significant role (Liu & Park, 2024). However, much of this research has focused on the positive aspects of virtual tourism, with limited exploration of the challenges users face, such as perceived complexity and technological risks (Al-Emran & Deveci, 2024; Kumar et al., 2023). These

gaps highlight the need for further investigation into negative user experiences in Metaverse tourism (Gupta et al., 2024; Jung et al., 2024).

This emerging need underscores the concept of the “darkverse,” referring to negative experiences and potential harms associated with Metaverse use, such as privacy issues and cyberbullying (Flavián et al., 2023; Singh et al., 2024). While previous studies have examined user satisfaction, the complexities of negative experiences, particularly how they influence overall satisfaction, remain underexplored (Gupta et al., 2024).

Our research addresses these gaps by examining the inhibiting factors affecting the adoption of WonderVerse Indonesia, a new Metaverse platform. By focusing on obstacles such as complexity and technological threats (Abumalloh et al., 2024; Suh, 2024), this study provides a balanced analysis of the challenges shaping user engagement. In doing so, we contribute to a more nuanced understanding of Metaverse adoption, offering critical insights into the broader virtual tourism landscape, with practical implications for policymakers, tourism operators, and developers.

## **2. Literature Review**

### ***The effect of hindering factors on virtual tourists' intention to use WonderVerse Indonesia***

Perceived complexity refers to the degree to which users believe a technology is difficult to understand or operate (Abumalloh et al., 2024). In the context of WonderVerse Indonesia, if virtual tourists perceive the platform as overly complex, it may lead to cognitive overload, reducing their willingness to engage (Chi et al., 2024; Singh et al., 2024). High levels of perceived complexity can discourage users from adopting new technologies, as they may feel that the effort required to learn and navigate the platform outweighs the potential benefits (Gupta et al., 2024; Kumar et al., 2023). This negative perception can significantly decrease the intention to use the platform. Therefore, we propose the following hypothesis:

**Hypothesis 1:** Perceived complexity negatively affects virtual tourists' intention to use WonderVerse Indonesia

Perceived cost refers to the financial, time, and effort-related expenses associated with using a particular technology (Choi et al., 2023; Ioannidis & Kontis, 2023). For virtual tourists considering WonderVerse Indonesia, high perceived costs—such as the need for expensive hardware, subscription fees, or significant time investment—may deter them from using the platform (Abumalloh et al., 2024; Chi et al., 2024; Nazli et al., 2024). The financial burden and the effort required to engage with the metaverse can create psychological barriers, reducing users' willingness to adopt the platform. Users' motivation to use the technology diminishes when they perceive that the costs outweigh the benefits. Therefore, we propose the following hypothesis:

**Hypothesis 2:** Perceived cost negatively affects virtual tourists' intention to use WonderVerse Indonesia

Perceived technological threat refers to users' concerns about the potential risks associated with using new technologies, such as the misuse of personal information, physical risks (e.g., falling, getting injured), or cybersickness (e.g., dizziness, disorientation, nausea, eye strain) (Al-Emran & Deveci, 2024; Suh, 2024). In the context of WonderVerse Indonesia, virtual tourists may worry about the safety of their personal data, the likelihood of experiencing cybersickness, or

the overall reliability of the platform. Such concerns can create fear and mistrust, reducing users' willingness to adopt the platform (Al-Emran & Deveci, 2024; Singh et al., 2024). When users perceive the platform as posing significant technological risks, their intention to use it will likely decline. This leads us to propose the following hypothesis:

**Hypothesis 3:** Perceived technological threat negatively affects virtual tourists' intention to use WonderVerse Indonesia

Perceived social threat refers to the fear of negative social consequences from using a particular technology (Singh et al., 2024). For virtual tourists, this could include concerns about their psychological well-being or the stigma associated with spending extended time in virtual environments (Suh, 2024). If users believe engaging with WonderVerse Indonesia might expose them to adverse social outcomes, such as harassment or bullying, they may be less likely to use the platform (Al-Emran & Deveci, 2024; Singh et al., 2024). Social pressures and the desire to conform to societal norms can significantly influence user behavior (Gupta et al., 2024; Jung et al., 2024). This leads us to propose the following hypothesis:

**Hypothesis 4:** Perceived social threat negatively affects virtual tourists' intention to use WonderVerse Indonesia

### **The influence of intention to use WonderVerse Indonesia on virtual tourist's satisfaction**

The intention to use WonderVerse Indonesia is critical in shaping virtual tourists' satisfaction. When users strongly intend to engage with the platform, they are more likely to fully explore its features and immerse themselves in the virtual environment, enhancing their overall experience (Alshurafat et al., 2024; Mandal et al., 2024). This deeper engagement typically results in greater satisfaction, as the platform fulfills their expectations and provides the desired level of enjoyment. Therefore, a solid intention to use WonderVerse Indonesia is likely to lead to higher levels of satisfaction among virtual tourists (Milanesi et al., 2024; Nam et al., 2024). Based on this rationale, we propose the following hypothesis:

**Hypothesis 5:** The intention to use WonderVerse Indonesia positively influences virtual tourists' satisfaction

## **3. Method**

### **Participants and Procedures**

The participants in this research consist of Generation Z and Y virtual tourists who have interacted with WonderVerse Indonesia (<https://www.wonderverseindonesia.com/id>). Data collection was carried out using Google Forms, with the questionnaire link distributed through social media platforms like Facebook and WhatsApp. We invited 596 virtual tourists from Generation Z and Y to participate in the main survey, employing strategies to boost the response rate, such as offering prepaid credits worth IDR 25,000 as incentives. Informed consent and ethical approval were obtained from all participants.

By the end of the 30-day research period from May to June 2024, we received 202 valid responses across both models, yielding a response rate of 33.89%. The demographic profile of the respondents, following the guidelines of Cox and Holcomb (2022), revealed that the majority were male (54.95%), with most holding a bachelor's degree (71.78%) or a master's degree (20.79%). Additionally, most participants were aged between 20 and 30 years (63.86%)

and were predominantly from the island of Java, with many having used WonderVerse Indonesia more than once.

## 4. Result and Discussion

SmartPLS 4 software was utilized for CB-SEM estimation (Venturini et al., 2023) to derive the results and findings of this study.

### Evaluation of validity and reliability

Convergent validity was evaluated using standardized factor loading (SFL) and average variance extracted (AVE), while divergent validity was assessed through the heterotrait-monotrait ratio (HTMT2), maximum shared variance (MSV), and average shared variance (ASV). As depicted in Table 1, all items demonstrated SFL values above 0.770, and AVE values exceeded 0.636 for all constructs in both models. These results confirm convergent validity (Bandalos, 2018; Roos & Bauldry, 2022). Furthermore, the HTMT2 ratios were below 0.85, and both MSV and ASV values were lower than the AVE values for both models, as presented in Tables 1 and 2. Thus, our measurement achieved divergent validity (Garson, 2013).

**Table 1. Results of validity and reliability evaluation**

| Measurement questions                                                                                                                                 | Item | SFL   | AVE   | MSV   | ASV   | $\rho_c$ |
|-------------------------------------------------------------------------------------------------------------------------------------------------------|------|-------|-------|-------|-------|----------|
| <b>A) Perceived Complexity (PCM)</b> (Source: Adapted from Abumalloh et al., 2024)                                                                    |      |       | 0.733 | 0.173 | 0.132 | 0.892    |
| Using WonderVerse Indonesia is a difficult task with intolerable challenges.                                                                          | PCM1 | 0.912 |       |       |       |          |
| Using WonderVerse Indonesia entails complex configuration processes.                                                                                  | PCM2 | 0.880 |       |       |       |          |
| Overall, using WonderVerse Indonesia is very complex.                                                                                                 | PCM3 | 0.770 |       |       |       |          |
| <b>B) Perceived Cost (PCS)</b> (Source: Adapted from Abumalloh et al., 2024)                                                                          |      |       | 0.730 | 0.324 | 0.213 | 0.844    |
| The cost of running WonderVerse Indonesia would be prohibitively expensive for me.                                                                    | PCS1 | 0.859 |       |       |       |          |
| The cost of purchasing equipment like augmented reality (AR) glasses would be prohibitively expensive for me.                                         | PCS2 | 0.850 |       |       |       |          |
| <b>C) Perceived Technological Threat (PTT)</b> (Source: Adapted from Suh, 2024)                                                                       |      |       | 0.636 | 0.212 | 0.194 | 0.840    |
| I think cybersickness (e.g., dizziness, disorientation, nausea, eye fatigue) caused by virtual reality could have a detrimental effect on my health.  | PTT1 | 0.816 |       |       |       |          |
| I think virtual reality's ability to collect extensive data about me could have a detrimental effect on my privacy protection.                        | PTT2 | 0.775 |       |       |       |          |
| I think the blocking out of the real world through the use of a head-mounted display could expose me to physical risks (e.g., falling, getting hurt). | PTT3 | 0.801 |       |       |       |          |
| <b>D) Perceived Social Threat (PST)</b> (Source: Adapted from Suh, 2024)                                                                              |      |       | 0.778 | 0.163 | 0.121 | 0.913    |
| Users who engage in harassment in WonderVerse Indonesia could have a detrimental effect on my psychological well-being.                               | PST1 | 0.834 |       |       |       |          |
| Users who use harsh language or profanity in                                                                                                          | PST2 | 0.905 |       |       |       |          |

| Measurement questions                                                                                                                        | Item | SFL   | AVE   | MSV   | ASV   | $\rho_c$ |
|----------------------------------------------------------------------------------------------------------------------------------------------|------|-------|-------|-------|-------|----------|
| WonderVerse Indonesia could have a detrimental effect on my psychological well-being.                                                        |      |       |       |       |       |          |
| Users who engage in immoral acts, such as bullying, in WonderVerse Indonesia could have a detrimental effect on my psychological well-being. | PST3 | 0.906 |       |       |       |          |
| <b>E) Intention to use WonderVerse Indonesia (IWI)</b><br>(Source: Adapted from Wu and Yu, 2024)                                             |      |       | 0.793 | 0.342 | 0.236 | 0.920    |
| I intend to continue using WonderVerse Indonesia in the near future.                                                                         | IWI1 | 0.919 |       |       |       |          |
| I will frequently use WonderVerse Indonesia.                                                                                                 | IWI2 | 0.908 |       |       |       |          |
| I will recommend WonderVerse Indonesia to others.                                                                                            | IWI3 | 0.844 |       |       |       |          |
| <b>F) Satisfaction (STF)</b> (Source: Adapted from Nam et al., 2024)                                                                         |      |       | 0.868 | 0.254 | 0.183 | 0.952    |
| I am satisfied with WonderVerse Indonesia.                                                                                                   | STF1 | 0.945 |       |       |       |          |
| I am pleased with WonderVerse Indonesia.                                                                                                     | STF2 | 0.923 |       |       |       |          |
| I am content with WonderVerse Indonesia.                                                                                                     | STF3 | 0.927 |       |       |       |          |

Note(s): SFL = standardized factor loading; AVE = Average variance extracted; MSV = Maximum shared variance; ASV = Average shared variance;  $\rho_c$  = Composite reliability.

Source(s): Authors own creation

**Table 2. Divergent validity results, descriptive statistics, and correlations among latent variables**

| Latent variable                              | 1             | 2             | 3             | 4             | 5             | 6             |
|----------------------------------------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Intention to use WonderVerse Indonesia (IWI) | <b>(0.85)</b> | -0.248**      | -0.107**      | -0.181**      | -0.395**      | 0.457**       |
| Perceived Complexity (PCM)                   | 0.275         | <b>(0.85)</b> | 0.417**       | 0.343**       | 0.254**       | -0.165**      |
| Perceived Cost (PCS)                         | 0.124         | 0.413         | <b>(0.85)</b> | 0.456**       | 0.298**       | -0.129**      |
| Perceived Technological Threat (PTT)         | 0.432         | 0.283         | 0.340         | <b>(0.85)</b> | 0.403**       | -0.189**      |
| Perceived Social Threat (PST)                | 0.206         | 0.329         | 0.579         | 0.575         | <b>(0.85)</b> | -0.391**      |
| Satisfaction (STF)                           | 0.510         | 0.180         | 0.144         | 0.419         | 0.211         | <b>(0.85)</b> |
| Mean                                         | 4.901         | 4.409         | 4.537         | 4.744         | 5.066         | 5.353         |
| Standard Deviation (STDEV)                   | 1.359         | 1.677         | 1.636         | 1.536         | 1.560         | 1.310         |
| Corrected Variance Inflation Factor (CVIF)   | 1.000         | 1.704         | 2.020         | 2.150         | 1.336         | –             |

Note(s): Below the diagonal are the HTMT2 values. Above the diagonal are the correlation values. Diagonal and bold elements are cut-off values for HTMT2. \*\* The correlation of constructs is significant at the 0.01 level (2-tailed).

Source(s): Authors own creation

In the next process, we assessed the reliability of the constructs using composite reliability ( $\rho_c$ ), with recommended values above 0.70 (Raykov & Marcoulides, 2011). As depicted in Table 1, our analysis indicates that both values exceeded 0.840 for all constructs in both models, demonstrating the reliability of the measures used.

## Testing of hypotheses

Our analysis revealed a beta ( $\beta$ ) value of -0.187 (STDEV = 0.066) for the direct influence of perceived complexity (PCM) on intention to use WonderVerse Indonesia (IWI), -0.146 (STDEV = 0.060) for the direct influence of perceived cost (PCS) on IWI, -0.117 (STDEV = 0.056) for the direct influence of perceived technological threat (PTT) on IWI, -0.119 (STDEV

= 0.055) for the direct influence of perceived social threat (PST) on IWI, and 0.401 (STDEV = 0.069) for the direct influence of IWI on STF. The significance level of these relationships is indicated by  $p < 0.05$ . Therefore, our findings strongly support hypotheses 1 (H1), 2 (H2), 3 (H3), and 4 (H4).

Furthermore, significant evidence of a relationship between intention to use WonderVerse Indonesia (IWI) and satisfaction (STF) among virtual tourists was found, with a beta coefficient ( $\beta$ ) of 0.484 (STDEV = 0.047) and significant at  $p < 0.001$ . Therefore, we also support hypothesis 5 (H5).

**Table 3. Hypothesis testing**

| Relationship between latent variables                                               | Coef ( $\beta$ ) | STDEV | p-value  | Finding      |
|-------------------------------------------------------------------------------------|------------------|-------|----------|--------------|
| <b>Direct effect</b>                                                                |                  |       |          |              |
| Perceived Complexity (PCM) → Intention to use WonderVerse Indonesia (IWI)           | -0.187           | 0.066 | 0.002**  | H6 supported |
| Perceived Cost (PCS) → Intention to use WonderVerse Indonesia (IWI)                 | -0.146           | 0.060 | 0.008**  | H7 supported |
| Perceived Technological Threat (PTT) → Intention to use WonderVerse Indonesia (IWI) | -0.117           | 0.056 | 0.034*   | H8 supported |
| Perceived Social Threat (PST) → Intention to use WonderVerse Indonesia (IWI)        | -0.119           | 0.055 | 0.039*   | H9 supported |
| Intention to use WonderVerse Indonesia (IWI) → Satisfaction (STF)                   | 0.484            | 0.047 | 0.000*** | H5 supported |

*Note(s):* Coef ( $\beta$ ) = standardized beta coefficient; STDEV = standard deviation; \* at  $p < 0.05$  level; \*\*at  $p < 0.01$  level; \*\*\* at  $p < 0.001$  level.

**Source(s):** Authors own creation

## Discussion

Our study tested five hypotheses concerning the factors that hinder Generation Z and Y virtual tourists' intentions to use WonderVerse Indonesia and how these factors impact their satisfaction. Our findings can be summarized as follows.

Our first hypothesis revealed that perceived complexity had a significant negative relationship with virtual tourists' intentions. When Generation Z and Y perceive the platform as overly complex or difficult to navigate, their likelihood of engaging with it decreases. Complexity may arise from issues such as a confusing user interface, difficult navigation, or an overwhelming number of features (Abumalloh et al., 2024; Singh et al., 2024). This finding aligns with prior research on technology adoption, emphasizing that simplicity is crucial for driving user engagement (Chi et al., 2024; Kumar et al., 2023). To mitigate the negative impact of perceived complexity, streamlining the platform's design, improving user support, and providing clear instructions or tutorials are essential strategies for guiding users through the experience.

In line with this, our second hypothesis examined the perceived cost factor, which includes monetary expenses such as the cost of purchasing equipment required to use the platform. The findings indicate that perceived cost significantly negatively affects virtual tourists' intentions to use WonderVerse Indonesia (Abumalloh et al., 2024; Choi et al., 2023). When Generation Z and Y perceive the platform as financially or temporally expensive, their likelihood of using it decreases (Nazli et al., 2024). This highlights the need to clearly demonstrate the platform's value in relation to its costs. Offering competitive pricing, free trials, or emphasizing the

platform's unique benefits to justify the investment of time and resources can help mitigate this barrier (Gupta et al., 2024; Singh et al., 2024).

Our third hypothesis revealed that perceived technological threat negatively impacts Generation Z and Y virtual tourists' intentions to use WonderVerse Indonesia. This factor reflects users' concerns about potential risks when using new or unfamiliar technology, such as privacy issues, cybersickness, or physical risks (Al-Emran & Deveci, 2024; Suh, 2024). These perceived threats can become significant barriers to adoption, especially among users who are less technologically proficient or more risk-averse (Singh et al., 2024). Addressing these concerns is crucial for building user trust and confidence in the platform. Implementing strong security measures, providing transparent information about data usage, and offering assurances about the platform's reliability and safety are essential (Al-Emran & Deveci, 2024; Jung et al., 2024).

Our fourth hypothesis examined perceived social threat, which was also found to have a significant negative relationship with Generation Z and Y virtual tourists' intentions to use WonderVerse Indonesia. Perceived social threats include fears of negative social consequences, such as harassment, bullying, or concerns about psychological well-being (Singh et al., 2024). Social pressures and the desire to conform to societal norms can influence user behavior and reduce the likelihood of adopting virtual tourism platforms (Al-Emran & Deveci, 2024; Suh, 2024). To counter this, promoting a positive social perception of the platform by highlighting its benefits, fostering inclusive and community-driven experiences, and addressing potential negative stereotypes associated with virtual tourism is vital.

Finally, our fifth hypothesis explored the relationship between virtual tourists' intentions to use WonderVerse Indonesia and their resulting satisfaction. The findings revealed a significant positive relationship between these two variables, demonstrating that stronger intentions to use the platform directly contribute to higher user satisfaction (Jafar et al., 2023; Nam et al., 2024). Virtual tourists who strongly intend to engage with WonderVerse Indonesia are more likely to invest time and effort into exploring its features, participating in its activities, and immersing themselves in the virtual experiences it offers. This supports the idea that when users approach a virtual tourism platform with clear goals and expectations, they are more likely to derive value from it, which aligns with existing research on technology and service usage (Alshurafat et al., 2024; Jung et al., 2024).

## **5. Conclusions**

Deterrents such as perceived complexity, expense, technology dangers, and social threats significantly reduce Generation Z and Y virtual tourists' intents to use WonderVerse Indonesia, according to this study. The study also discovered a direct correlation between higher satisfaction levels and stronger user intentions. With regard to removing obstacles to technology adoption and enhancing user experiences, these findings offer significant insights for developers and stakeholders in the metaverse tourist sector. This study identifies the characteristics that hinder virtual tourists from interacting with metaverse platforms, contributing to the growing body of knowledge on technology adoption and metaverse tourism. This study also offers valuable insights for the creators of WonderVerse Indonesia and similar platforms, emphasizing the importance of simplifying platform design, reducing costs, and addressing social and technological risks. These results help the virtual tourism sector better grasp the tastes and demands of the younger generation. Despite offering insightful information, this study has a number of drawbacks. This study only examines Generation Z

and Y virtual travelers, which may not be representative of other age groups. Second, it just evaluates users' intentions; it ignores actual behavior or prolonged platform use. Third, this study did not thoroughly examine location and culture variables that might affect the adoption of technology. By examining additional age groups or variables that affect technology adoption in other nations or cultures, future studies might expand the demographic reach. Further research might also look at long-term user behavior and how virtual tourist experiences affect platform loyalty and user retention. Future studies might look into how new technologies, such as augmented reality (AR), can improve virtual tourists' engagement and satisfaction, as well as the emotional components of virtual tourism encounters.

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