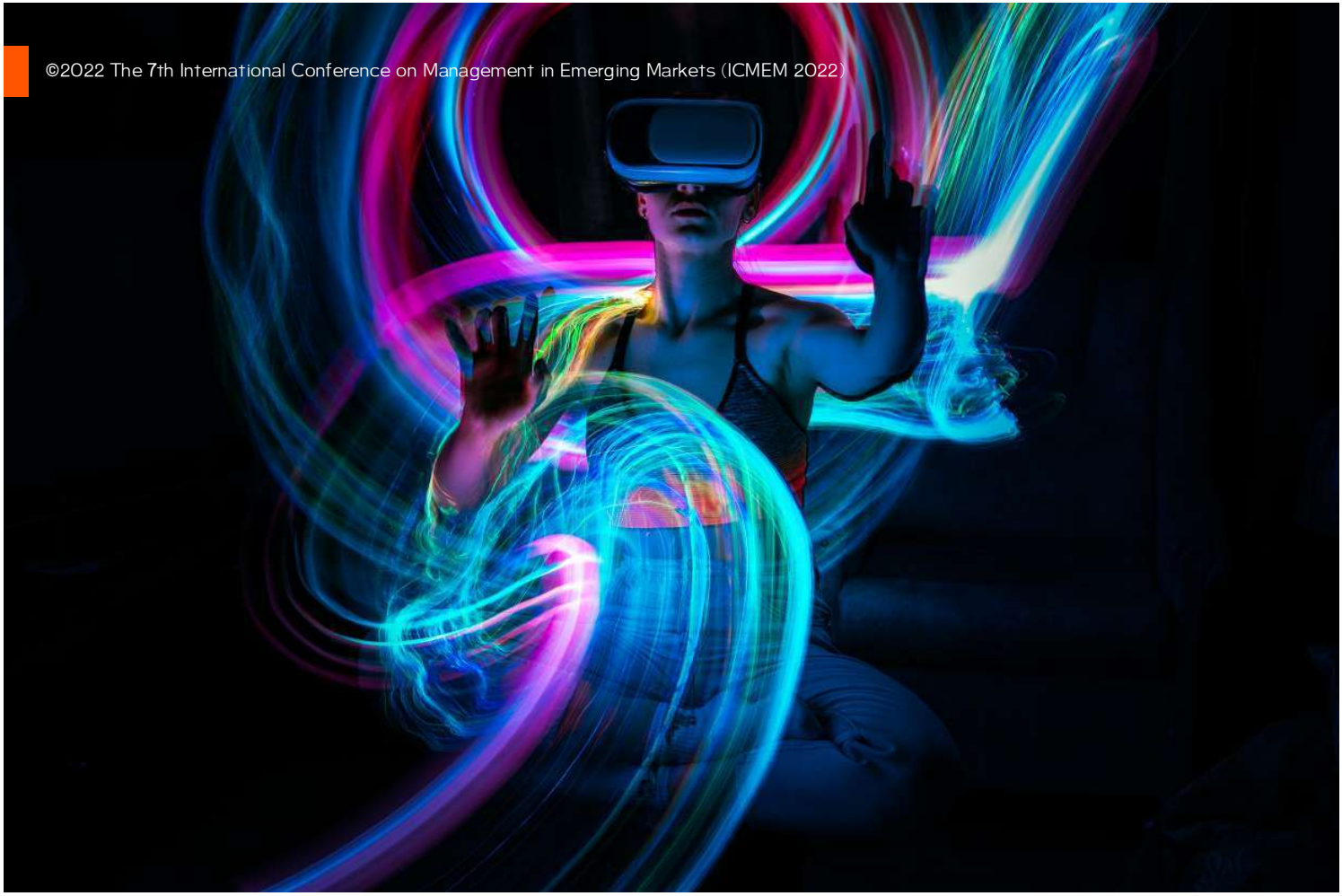

Paper 87

Driving Factors of Entrepreneurs to Do Business in the Metaverse: A Conceptual Research

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Abstract - **The Metaverse gains more and more attention each day. The development of the Metaverse requires entrepreneurs to grow their business capabilities and the willingness to do business in the Metaverse. However, the Metaverse remains a mystery for many due to its contemporary nature. Thus far, those developing businesses in the Metaverse are limited to the early adopters. In that regard, this research aims to contribute to the literature on the Metaverse by investigating factors that drive entrepreneurs to do business in the Metaverse. The current state of the literature provides very limited empirical insight regarding the Metaverse. This research utilizes an extensive literature review method, particularly in entrepreneurship literature in a virtual world setting (e.g., Second Life), to obtain relevant insight on the subject matter. The literature regarding the previous trend of the virtual world can act as a proxy to gauge the Metaverse due to their similar characteristics. Furthermore, this conceptual study is projected to produce a new proposed model that comprises factors that drive the entrepreneurial intention to do business in the Metaverse.**

Keywords - **Artificial intelligence, business intention entrepreneurship, metaverse, virtual world**

I. INTRODUCTION

The term 'Metaverse' has seen a significant rise in popularity after Mark Zuckerberg's announcement on October 28th, 2021. He rebranded his company, Facebook, by changing its name to 'Meta' [1]. The transition was made to reshape the company's identity to give a proper representation for its future key product: The Metaverse [2]. Zuckerberg is not, by any means, the only prospector eyeing business in the Metaverse. Tech giants such as Microsoft, Nvidia, Google, Qualcomm, and many others have invested billions of dollars into developing their version of the Metaverse [3]. Even big players in the fashion industry take a keen interest in the Metaverse. For instance, GUCCI, Balenciaga, and Louis Vuitton joined the Metaverse initiative [4]. In a recent report done by McKinsey, it is estimated that the value of the Metaverse could inflate up to a staggering $5 trillion by 2030 [4].

The term 'Metaverse' was first coined by Neal Stephenson in 1992 in a Novel titled "Snow Crash" [5]. In the book, The Metaverse refers to a virtual world in which people can interact with others and engage in various activities in the form of a digital representation called an avatar. In our world, the word Metaverse is yet to have a definitive definition [4]. Despite the term's ambiguity, there appears to be agreement that the Metaverse is the next iteration of the internet. It is predicted to offer an immersive experience that further blurs the line between virtual and reality [5]. With the support of blockchain technology, the Metaverse allows a system that operates in a decentralized manner that, in turn, gives more agency to users to dictate their own business and economy. This quality is hailed by many as the key to the Metaverse's limitless potential.

In the present day, the idealized vision of the Metaverse has yet to be realized. For example, there is yet to exist an interconnected and persistent virtual world in which we could immerse ourselves with the support of Augmented Reality (AR) and Virtual Reality (VR) technology. Nevertheless, the building blocks, such as Cryptocurrencies and the Non-Fungible-Token (NFT), rapidly develop while their usage permeates society more daily. For instance, one of the prominent Cryptocurrencies, Bitcoin, debuted on New York Stock Exchange 13 years after its inception [6]. Meanwhile, NFT saw a massive increase in trading volume estimated to surpass 24 billion dollars in 2021 compared to only 0.1 billion dollars the year prior [7]. In terms of infrastructure, AR and VR technology are expected to increase in value up to ninefold by 2025 [8]. It is as if the world is making a serious preparation for the inevitable future of the Metaverse. However, there are lingering questions surrounding the trend; will the public, low to mid-range business practitioners and laypeople, join the Metaverse bandwagon? or the Metaverse enthusiasm is exclusive to those tech giants and capital holders?

Despite the Metaverse lucrative potential, considerable uncertainty looms over its adoption. For instance, most developing countries lack the technology to support the Metaverse. According to the assessment by [9], the entry-level VR (8K, 2D, 30fps) needs to be supported by a minimum of 100 Mbps internet bandwidth, while the advanced VR (12K, 2D, 60fps) requires 400 Mbps internet bandwidth. Currently, no country has the required internet capacity for advanced VR. Even the entry-level 48 countries can only support VR (according to nations' internet bandwidth data from [10], most of which are developed countries. The rest, especially third-world countries, are left out with internet bandwidth ranging from 30 Mbps and below (Indonesia, for instance, currently has 27.83 Mbps internet bandwidth).

Furthermore, technology literacy may also affect the desire to join the Metaverse. According to the Microsoft Work Trend Index Annual Report, around 52% of the respondents are open to using immersive digital space in the Metaverse. Among those who are enthusiastic are Gen Z and Millennials [11]. However, a survey by [12] that measures the Indonesian younger generation's social media habits shows that only 29% of the respondents are familiar with the Metaverse. 87% of the respondents are those between 18 and 35 years old, which is on the younger side. These habits can indicate a disparity between the brewing hype of the Metaverse and the actual global interest.

In that regard, it remains unclear whether the interest in jumping into the Metaverse is prevalent in society. Research regarding the intention towards the Metaverse (read: [13]–[17]) is already being done. However, it is limited to the general intention of using the Metaverse [14], [16], [17] or specifically adopting related technology [15]. Meanwhile, research regarding the intention to develop business in the Metaverse is under-explored. Considering that opportunities and the various new form of consumption are among many of the Metaverse attractiveness, the need to find the driving factor for entrepreneurs to do business in the Metaverse becomes urgent. Therefore, this study aims to determine the driving factors for entrepreneurs to do business in the Metaverse. In doing so, this study is initiated by two research questions as follows:

1. What is the Metaverse?

2. What are the driving factors of entrepreneurial intention to do business in the Metaverse?

Tackling the first question, this research will do comprehensive research on the literature, both sourced in the academic journal and from various authoritative empirical reports (e.g., McKinsey, Harvard Business Review, Deloitte, and MIT Sloan Management Review). The findings from which will be synthesized to encapsulate the current definition of the Metaverse. As for the second question, this research will employ Technology Acceptance Model (TAM) framework as the foundation for gauging the entrepreneurial driving factor to do business in the Metaverse. TAM predicts intention using perceived ease of use and perceived usefulness. Potentially this research contributes by identifying factors affecting each construct through an extensive literature review. This research is a testable conceptual framework that predicts entrepreneurial intention to do business in the Metaverse.

II. METHODOLOGY

This study used a conceptual research method. This method focuses on the Metaverse concept or theory that explains or describes the Metaverse meaning and intention behavior. The conceptual research framework is established to ensure the coherence of this method. Here is a step-by-step process for developing the conceptual research framework (See Fig. 1). First, this research will attempt to provide a clear definition of the term 'Metaverse'. This research synthesizes the definition of Metaverse documented in the academic literature, empirical report, and expert opinion. The synthesis result will serve as a reference to orient this research forward. The second step is to determine the framework on which this research's conceptual model will be based. In doing so, this research considers previous intention behavior models in the literature. The selected model criteria are based on the definition of the term 'Metaverse' this research adopts.

The third step is performing a literature review to identify the potential driving factors of entrepreneurial intention to do business in the Metaverse. This research uses the bibliometric study by [18] to narrow the scope of the search (see Fig. 2). Due to the contemporary nature of this topic, this research will limit its search to the keywords related to the Metaverse that has the most density. Subsequently, this research conducts a review that covers both academic literature and empirical report. On the academic front, the literature was obtained from multiple authoritative databases such as Scopus, Emerald, Science Direct, Google Scholar, and ProQuest. While for the empirical front, the report was taken from prominent sources such as HBR, McKinsey, Accenture, and Forbes. Subsequently, this study selects the literature based on relevance to the research objectives (i.e., defining the Metaverse and investigating the driving factors of entrepreneurial intention to do business in the Metaverse).

The fourth step is formulating the conceptual model. The model will be based on the selected intention behavior theory, where the identified driving factors are used as an extension to the model. The driving factors being selected to incorporate the conceptual model should fulfill a certain criterion: that both experts corroborate their positive relationship towards Metaverse adoption intention in the empirical report and researchers in the previous literature.

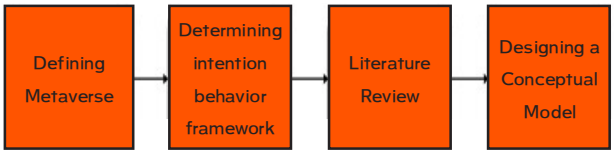

Fig. 1. Conceptual Research Framework

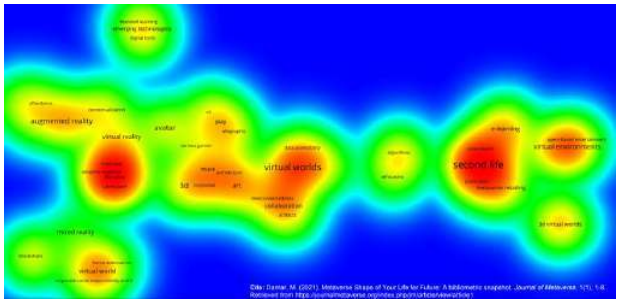

Fig. 2. Bibliometric Snapshot [18]

III. RESULTS

A. What is the Metaverse?

As of today, society applies the term 'Metaverse' loosely. At times the term is used to represent activities of Cryptocurrency, NFT, and virtual real estate (The Sandbox and Decentraland) instead of what is being described by Zuckerberg. Therefore, to reduce the ambiguity, it is necessary first to determine the definition of the term 'Metaverse' used in this research context.

Researchers and practitioners alike have tried to define Metaverse. Most of them agreed that Metaverse takes a form of a virtual world. A study of [14] defines the Metaverse broadly as a shared virtual environment characterized by its interoperable and persistent network in which people can interact simultaneously. In comparison, studies of [20] and [21] suggest that the virtual world of the Metaverse serves as an extension of our physical universe that adds dimensions to economic, social, and leisure activities. However, the description that circulates regarding the Metaverse varies.

On the one hand, [22] suggests that Metaverse is similar to the term 'internet' as it comprises multiple virtual reality domains that allow users to store information in blockchain and own digital goods. On the other hand, instead of describing it as multiple domains, [23] argues that the Metaverse refers to a continuum that represents a holistic integration of many virtual domains or platforms that comprises the use of technologies such as VR, AR, and blockchain. Regardless of one's perspective on the Metaverse, everyone agrees that it involves using an avatar as a digital representation [19] [24]. Moreover, all suggest that the Metaverse requires the support of technologies that includes VR, AR, gaming, machine learning, 3D graphics, blockchain, and sensors [24].

In that regard, for clarity purposes, this research will not adopt a descriptive definition of the Metaverse from the previous researchers and practitioners. Instead, this research will refer to the Metaverse regarding its innate characteristics agreed upon by the majority. Thus, in this study, the Metaverse comprises 1. A virtual world, 2. The use of avatar as digital representation, and 3. The utilization of supporting technology such as AR, VR, and blockchain. With that laid out, in the remainder of this paper, those three characteristics represent the meaning of the Metaverse term.

B. Technology Adoption Model (TAM)

TAM is a widely used theory to predict the adoption behavior of new technologies. Davis first introduced TAM in 1989 [25]. Since its inception, TAM remains a robust acceptance theory and is still used to measure the user's acceptable behavior toward contemporary technologies [26]. For instance, concerning Metaverse related technology, TAM has been used to investigate the adoption behavior for information technology [27] and cloud computing [28], electronic government adoption [29], and Artificial Intelligence (AI) [30]. TAM estimates intention behavior by measuring the technology's perceived usefulness and ease of use [25]. Perceived ease of use is the rate of difficulties for the technology to use and access. Meanwhile, perceived usefulness represents the degree to which the user believes the technology can increase his/her job performance.

There are other theories to measure adoption behavior, such as the Theory of Planned Behavior (TPB) [31], the Unified Theory of Acceptance and Use of Technology (UTAUT) [32], and the Value-Based Adoption Model (VAM) [33]. TPB has similar characteristics to TAM. However, it expands the analysis toward the potential external factor that may affect adoption intention. Particularly, TPB extends its focus to analyze the societal norms regarding the technology and estimate whether the potential users are affected by it. UTAUT further expands the analysis of the external factors. For instance, it considers the social influence and facilitating conditions antecedents of adoption intention.

On the other hand, VAM dichotomizes adoption intention's precursor as benefit and sacrifice. VAM focuses on the technology's usefulness and potential enjoyment to measure the benefit. Meanwhile, VAM focuses on the technical aspects of the technology and the fees required for its adoption while measuring the sacrifice.

This paper identifies the factors influencing entrepreneurial intent to do business in the Metaverse. For this purpose, the TAM framework will be used as the foundation. The reason for this selection comes two-fold. Firstly, due to the dense technological aspect of doing business in the Metaverse (e.g., the need to integrate AR, VR, and blockchain into the entrepreneurial activity). Secondly, this study focuses on the internal aspects of adoption behavior effectively represented in TAM.

C. Towards the Conceptual Model

One of the expected results of this research is to present a conceptual model that depicts the driving factors for entrepreneurial intention to do business in the Metaverse. For this, the TAM framework is utilized as a core foundation. Meanwhile, the potential driving factors are adopted from previous research through literature review. The literature search is done by considering the definition of the term 'Metaverse' presented in the previous section. Thus, this study attempts to estimate the driving factors for entrepreneurial activities in a virtual world that are carried out using an avatar and technology such as AR and VR. While contemporary research regarding business in the virtual world is sufficient, research specifically investigating the kinds of virtual worlds operated with avatars remains scarce. Therefore, this study uses the study of another virtual world (e.g., Second Life and Habbo Hotel) that bears similar characteristics to the Metaverse as part of the literature review. Investigating entrepreneurial study in Second Life and Habbo Hotel can arguably act as a proxy to estimate driving factors for the entrepreneurial intention in the virtual world using an avatar. Apart from that, the literature review covers the current study regarding the emerging platform of the Metaverse in the academic literature and other authoritative sources such as McKinsey, HBR, and Accenture. The conceptual model from the literature review is presented in Fig. 2. The remainder of this section elaborates on each driving factor.

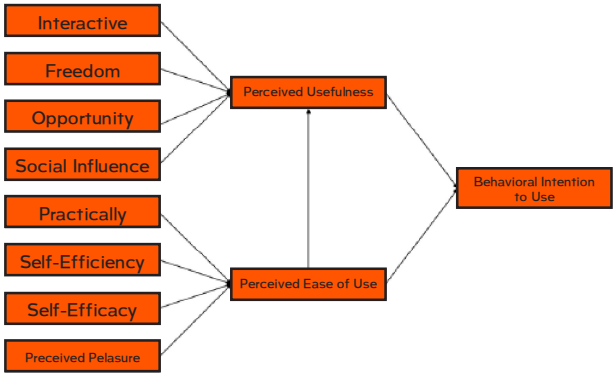

Fig. 2. Conceptual Model

D. Interactivity

Metaverse ensures users' virtual platform interactions through interactivity that ensures synchronous learning, real-time, and interoperability [34]. User interactivity also refers to human-computer interaction [35]. Interactivity can be defined as the ability to move and navigate through a virtual environment and the users' ability to interact with virtual objects, other users, and AI-controlled agents and control the virtual environment in real-time [36] [37]. Agents with advanced AI capabilities can interact in more realistic ways, such as providing helpful information, displaying emotions, recognizing individuals, and recalling interactions. As a result, the ability of users to interact with virtual content is a critical component of immersive VR. Because Metaverse environments are highly interactive, users engage with information in an active rather than passive manner, which may positively affect perceived ease of use and perceived usefulness. According to [14], interactivity positively affects the perceived ease of use and perceived usefulness of early metaverse platform users.

E. Freedom

Freedom It is usually affiliated with statistical tests or affiliation methodologies relating to flimsy philosophical discussions about free will. Freedom is portrayed as a human brain-created fantasy [38]. Perceived freedom is possibly more closely related to internal motivation. Perceived freedom has a detectable element of playfulness [39]. One of the Metaverse's potential is greater freedom to create and share [40]. In the Metaverse, the participant's identification (ID) aligns with reconfiguring the virtual world's regulations, obtaining unrestricted freedom and character supremacy. However, neither party can afford it [41]. Metaverse, which further provides its users with complete freedom, represents a significant advancement in Internet technology [42]. As a result, users can enjoy a relatively high level of safety and freedom [43]. Finally, the demands for virtual world freedom, Internet content and interaction methods are constantly increasing. To put it another way, Metaverse could construct a linear social environment that seems distinct from consumers' real social connections, elaborating consumers' freedom, liberating them from the constraints of the real world, and broadening friendship circles [44].

F. Opportunity

A study of [45] contends that its exploration of a critical intangible opportunity is frequently a matter of serendipity within a legal context - not only a coincidence, and yet challenging work as well as good fortune combined with sustained attention but also versatility. Opportunity requires a broad understanding that includes all methods for improving effectiveness. These include innovative and oblique thoughts in plan formulation, taking advantage of favorable conditions, abolishing negative behavior patterns, and looking for better tough choices among all targets, together with non-measurable objectives [46]. Delivering a unique and special service and user deriving can create more opportunities to engage but instead be involved throughout the entire experience [47]. Study of [48] trust that the Metaverse presents a significant opportunity for using human-centered methods to expand high-value-added candidates in a modern trend of Cyber-Physical Systems.

G. Social influence

The influence of acquaintances' opinions (e.g., family and friends) on personal behavior to use a particular technology is called social influence. According to the Social Influence Theory, consumers tend to follow the opinions of those around them whom they consider important [17]. The users may use the Metaverse platforms based on the recommendations or expectations of others. Social influence combines subjective norms, social factors, and theoretical images [49]. Previous studies have found that social influence can affect perceived ease of use, perceived usefulness, and intention to use metaverse platforms. According to the [14] study, social influence positively affected early users' perceived ease of use and perceived usefulness of Metaverse platforms. Furthermore, social influence was discovered to influence university students' perceived usefulness and intention to use Metaverse [17]. In addition, social influence affects the intention to use Fintech Digital Sandbox [16].

H. Practicality

Practicality becomes one of the most important things to be considered by business owners to get the attention needed to maintain their customers [50]. Metaverse is a user-experienced platform based on ease of use due to the developing tech-savvy customer [51]. Furthermore, the Metaverse was being developed apart from the practice towards ease of use. The Metaverse also allows the business owner to practice conducting business in the Metaverse with a faster learning process. Moreover, getting new roles accommodates each need inside the Metaverse [24]. The Metaverse itself offers vast business potential. Through the limitation of space that can connect the business owner with the customer by using the mobile device, those are the ideas that have been developed in the last few years that can be regarded as a breakthrough in the practicality and ease of use of Metaverse technologies [24].

I. Self-Efficiency

Self-efficiency in the Metaverse also became one of the considerations for consumers and business owners to conduct business in Metaverse because the Metaverse was considered a co-creation world established by the business communities [52]. The new iteration of the internet is still being developed, and it is believed that it will have a massive implication both for the consumer and the business owner to give them enough self-efficiency to conduct business in the Metaverse [52]. The new economic dynamics of the Metaverse are offering digitized and decentralized data ownership to give every person in the society an improved self-efficiency to deal in the Metaverse through a decentralized financial system. It offers security and gives personalized data privacy that will soon advance to the trend of data portability [53]. The effort to improve the self-efficiency of each party involved in the Metaverse will undoubtedly lead to the ease of use of the Metaverse itself. It can happen by continuously developing the facilities and technologies to accommodate the security demands of the economy in the Metaverse [54].

J. Self-Efficacy

Self-efficacy refers to people's expectations, judgment, and beliefs about an individual's ability to complete a task successfully and take action [17] [55]. Self-efficacy is a self-evaluation that influences individuals' decisions, efforts, and behavioral mastery [56]. The greater sense of self-efficacy, the easier it is to accept and positively influence the use of new information technologies such as the Metaverse. The perceived ease of use of early users of metaverse platforms was positively influenced by self-efficacy [14]. Self-efficacy also influenced university students' perceived ease of use and intention to use Metaverse [17].

K. Perceived Pleasure

Pleasure can be considered evolution's boldest trick, motivating an individual to pursue rewards necessary for fitness. Yet, in modern environments of abundance, it also induces maladaptive pursuits such as addictions [57]. A sedative item might cause various responses in various subjects, for instance, pleasure, a sensation of the brilliant, misery, misfortune, or distress. Additionally, specialists consider pleasure the broadest inclination liable for the customer experience [58]. Many studies have shown that enjoyment or pleasure significantly impacts user acceptance of a computer in the workplace. Inner motivations manifest as enjoyment or pleasure, directly impacting the intention to continue using. The greater the level of enjoyment or pleasure, the greater the level of satisfaction; efforts should be made to determine usage continuance intention and enjoyment to increase satisfaction [59].

IV. DISCUSSION

The expanded TAM was used to investigate the factors influencing the intention to use the Metaverse: content quality, perceived pleasure or enjoyment, social influence, and self-efficacy. The antecedent variables of the extended TAM, perceived usefulness, and perceived ease of use influenced the intention to use the Metaverse. Besides that, perceived ease of use influences perceived usefulness. The perceived ease of use, perceived usefulness, and intention to use Metaverse were all affected by the content quality and perceived pleasure enjoyment [17]

The researchers discovered that perceived ease of use is positively influenced by self-efficiency, perceived curiosity, and perceived pleasure. Moreover, perceived usefulness is positively influenced by social norms, perceived pleasure, and perceived ease of use. Perceived curiosity, perceived pleasure, and self-efficiency all have a positive influence on perceived ease of use. As such, when Metaverse innovation gives the client the pleasure and curiosity to examine it, that will assist with feeling ease of use of Metaverse innovation [60]. Perceived usefulness was positively influenced by perceived pleasure, social norms, and perceived ease of use. The greater the user's pleasure from technology, the greater the user's usefulness, and when technology is simple to use its usefulness increases. This perceived level of pleasure or enjoyment helps users understand new technology and a superior comprehension of innovation by permitting them to appreciate utilizing it [60].

V. CONCLUSION

Metaverse is a socialized digital environment that develops and builds to facilitate people to communicate with each other through the limitless barrier of digital technology networks. The TAM can be considered one of the models that can predict the adoption of the new technology. The Metaverse development adoption regarding the business industry can be seen from the perceived ease of use and perceived usefulness that consist of several factors that have already been mentioned and explained in the paragraph above. There are factors included in the TAM model of Metaverse. First, Interactivity, Freedom/Agency, Opportunity, and Social Influence for Perceived Usefulness. Second, Practicality, Self-Efficiency, Self-Efficacy, and Perceived Pleasure for Perceived Ease of Use.

The Metaverse is a new frontier. Despite the existence of the Metaverse agenda back in 2007 [61], the topic remains vague and speculative. Therefore, the current state of academic literature regarding the topic is bare. Thus, this study fills the literature gap by compiling potential driving factors for entrepreneurs to do business in the Metaverse. Remarkably, this study adds to the discussion in the entrepreneurial literature that focuses on business in the virtual world. This study's result benefits the developer of the Metaverse platforms and policymakers. For instance, as developers, the compilation of potential driving factors for the entrepreneur in this study can be considered for future improvement due to the importance of entrepreneurs' role in attracting users and creating various forms of economies inside the Metaverse. For policymakers, the proposed conceptual model can be used as part of the guidance for policy formulation, particularly those concerning the regulation of the Metaverse.

The managerial implication of the study defines that corporations must constantly reimagine their business models and offerings to remain competitive in a fast-changing environment. It is due to the emergence of advanced digital technologies, the shortening of technology life cycles, and changes in customer demand and intention behavior. Nonetheless, internet users create accounts and profiles to access retail products and services, which are then personalized and used as a platform for targeted advertising. Moreover, Metaverse gives all new ways of personalizing promotion for its company and targets. It is often the case in the Metaverse platform when users visit crowded retail areas. An automated system detects a user's presence. It sends out 'notecards' with personal data regarding different services and products. This study will help managers predict entrepreneurial intention to do business in the Metaverse to pay more attention to the factors based on a conceptual model easily and effectively. This approach also will help managers better understand the potential users of the Metaverse platform perspective. Therefore, managers can design specific strategies to attract more potential users of the Metaverse platform.

Despite the theoretical and practical contributions presented through the study's findings, future research must address some limitations. First, the findings of this study are expected to provide many ideas as primary data for future metaverse research. This study also contributes to entrepreneurs looking to start a business in the Metaverse as a source of competitive advantage. However, the conceptual research method has limitations despite its contribution. We intend to conduct future research using mixed methods. Extending this research may assist metaverse designers in creating more appealing metaverse platforms for entrepreneurs. Second, this study focuses on the factors that motivate entrepreneurs to conduct business on various metaverse platforms. As a result, research on a specialized topic will be required for future research. For example, the research could investigate specific Metaverse platforms or companies. Metaverse platforms or company-specific usage circumstances can influence driving factors for entrepreneurs to do business. Finally, only two TAM constructs were used in this study: perceived ease of use and perceived usefulness. Other constructs that could affect the proposed model should be considered in future research.

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