The Impact of Metaverse Business on the Real Estate Industry

Bader Mohammed Rashed Bin Nesaif Doctor of Business Administration University of Central Lancashire (UCLAN) Preston, England Syeda Shagufta Department of Computer Sciences Iqra University Islamabad Campus (IUIC) Islamabad, Pakistan

Abstract:- Metaverse technology has the potential to transform the way real estate transactions are conducted to buy and sell properties. The paper aims to investigate the impact of Metaverse business on Dubai real estate. A qualitative in-depth inquiry is conducted using semistructured interviews with 10 real estate agents and brokers in Dubai. The findings indicate that Metaverse can boost real estate transactions by providing an immersive and interactive experience to potential buyers. However, the paper also highlights the challenges associated with the use of Metaverse technology in Dubai real estate such as concerns over privacy, security, and legal requirements. Nevertheless, the insights from this study can inform the decisions of real estate companies as they explore the novel landscape of Metaverse business.

Keywords:- Metaverse Business; Metaverse Real Estate; Virtual Reality; Virtual Property; Property Buying And Selling; Dubai Real Estate; Digital Real Estate.

I. INTRODUCTION

Metaverse technology has now become more than just a 3-dimensional (3D) stage for augmented reality (AR) and virtual reality (VR) games by enabling the digital representation of individuals. The selling/buying of real-world properties has become translucent with AR/VR integration. At the heart of the Metaverse lies the VR/AR features along with blockchain to protect intellectual rights with a non-fungible token (NFT). This unique expansion of the internet goes beyond the basics of interacting socially to produce valuable assets using cryptocurrency. For instance, the largest platform of the virtual world, the Sandbox executed about 65,000 transactions worth 350 million USD in 2021 followed by Decentraland, the second largest with 21,000 transactions worth 110 million USD [1]. This indicates the rapid expansion and emergence of Metaverse to become a potential solution for commercial purposes like real estate.

Powerful economies worldwide realise the potential of using multiverse to revolutionise business models including the United Arab Emirates (UAE) [2]. Recently it was announced that a novel economic metric gross Metaverse product (GMP) will be used instead of GDP (Gross Domestic Product) to signify the considerable contribution to Dubai's economy [3]. Furthermore, UAE is actively devising plans to attain benefits from Metaverse technology in different sectors including real estate. For instance, Kshetri [4] examined the UAE government's plans to have its headquarters and offices in the Metaverse to bring efficiency to administrative processes. Moreover, Dubai has planned to create a virtual city, its digital twin, in Metaverse offering huge opportunities for residents to meet people, visit places and share thoughts [5]. With the Dubai Metaverse Strategy, the city is expected to attract Metaverse companies and integrated technologies to create more than 40,000 jobs by 2030 [6]. Despite important Metaverse announcements and strategy formulations in Dubai, the future remains speculative for real estate [4].

The lack of empirical data on the exact impact of Metaverse technologies on the growth and development of Dubai motivates the author's interest in this area. This is because the Metaverse technology in Dubai real estate and in general is in a premature status [7]. Although inspired by the traditional real estate world, the Metaverse provides no trusted third party which increases the possibility of identity theft and fraud. At the same time, the frequency of hacks, frauds, AI attacks, malware and fake transactions cannot be disregarded. Despite these challenges, the use of Metaverse businesses can be beneficial for the growth and development of the real estate industry in Dubai. For instance, the immersive and highly interactive experience with the Metaverse can boost sales in the real industry via user-friendly property buying, selling, and renting options [8]. Likewise, the features of the Metaverse such as home décor and VR tours to digital Dubai provide endless opportunities for boosting sales by influencing buyers' visiting and purchase intentions. Consequently, more research is needed about Metaverse as it provides a convenient and faster way to explore/meet virtual real estate brokers/agents [9, 6].

Given the scarcity of qualitative research in the chosen research area, the study aims to examine the impact of Metaverse business on the growth and development of Dubai real estate.

The following specific research questions are explored:

- How Metaverse technology has influenced the demand for physical properties in Dubai real estate market?
- How Metaverse can influence the buying and selling experience of real estate clients in Dubai?
- What challenges and opportunities are associated with the emergence of Metaverse technology in the Dubai real estate market?

II. LITERATURE REVIEW

A. Theoretical Aspects

Several theories can be used to explain the phenomenon behind the use of Metaverse technology in the real estate industry in Dubai. For instance, Technology Acceptance Model (TAM) explains how individuals remark on and adopt new technology [10]. According to this model, the users' perceptions to use new technology are impacted by the perceived usefulness and ease of use of that technology. In the case of Metaverse technology, the buyers and sellers involved in the real estate industry are likely to use it because of how they perceive and accept the Metaverse in real estate transactions. For instance, Toraman and Gecit [11] used TAM to analyse the acceptance of Metaverse and NFT, the results confirmed that perceived usefulness was positively influenced by perceived enjoyment, trust, and computability. Although TAM is useful to explain the potential buyer's purchase intention for real estate transactions in the Metaverse, it has limitations. Ajibade [12] identified that TAM only focuses on the individual level overlooking the possibility of other external factors that impact adoption such as technological, environmental, and other influences. Another theory that is popularly cited and used to explain technology adoption includes the Diffusion of Innovation (DOI) theory. This theory examines how novel ideas spread across a population, the adoption of innovative technologies follows a bell curve that indicates innovators, early adopters, early majority, late majority, and laggards [13]. The DOI is useful for the current study as it effectively explains how Metaverse technology is adopted in real estate by differentiating the potential adopter's category [14]. This provides an opportunity to identify and understand how early adopters might be influenced to use Metaverse for real estate transactions in Dubai. However, there are limitations as the theory does not consider how social and cultural factors may influence the users [15]. This limits the effectiveness of DOI to explain how Dubai's real estate industry will be disrupted and what new opportunities may appear. Disruptive Innovative theory (DIT) is also one of the most used theories to explain the impact of novel technologies like the Metaverse. DIT explains how new technology can disrupt existing markets and develop new opportunities [16]. This seems to be true in the case of the Metaverse as well because virtual property sales are on the rise. However, the Metaverse technology is still in its early phase and it is hard to predict how this technology may disrupt the current existing real estate industry in Dubai. Network effect theory (NET) is useful in understanding how technology becomes valuable as the number of users of a specific technology increase [17]. The theory is useful in explaining how Metaverse may create a network effect in the Dubai real estate market. However, the drawback of this theory is that critical mass users are required to be effective which may take time.

Out of the theories above, the NET is most relevant because it provides insights into the network effect created by Metaverse technology in the Dubai real estate industry attracting more sellers and buyers. NET can be effectively used to explain how Metaverse may transform the way real estate transactions are conducted. Furthermore, it provides implications for the Dubai real estate industry to develop unique user acquisition strategies and invest adequately in marketing the Metaverse technology. Several authors [18, 19] have examined the network effects of Metaverse with its diverse contents and rapidly emerging applications. However, it should be noted that reaching an adequate number of critical mass users would take time which is relevant to the case of a Metaverse in Dubai real estate because technology is novel and still in the early stages.

B. The Potential of Metaverse for Real Estate

The Metaverse technology offers immersive experiences for users to interact with virtual objects and other people in a 3D environment. The potential application of Metaverse in different industries including real estate is realised by several studies. For instance, Nieradka [20] analysed the use of virtual reality in the real estate industry to determine its potential benefits. A multi-sensory presentation of property offers and innovative ways of selling is among the benefits of a VRbased real estate business. Furthermore, the results suggested that VR technology exerts an influence on buyer behaviour due to ease of use, innovativeness, and evoked feelings. To provide empirical support, Brenner [9] examined the impact of VR staging on the behaviour of potential buyers. The authors conducted 3 different experiments and found that participants attaining VR experiences of properties displayed willing behaviour to visit the property compared to those who saw staged images. The increased presence and connectivity offered by VR were found to be the main factor behind this. This shows that the Metaverse has the potential to transform the processes related to the real estate industry using VR experiences. The increased presence and high-quality interaction embedded in Metaverse technologies contribute to the growth and development of real estate businesses. Similarly, Azmi et al. [21] examined the potential of a Metaverse in real estate marketing by investigating how homebuyers can be influenced to purchase properties. Using experiments with 65 participants, the authors showed that VR experiences are significantly different from the physical environment. The VR experiences positively affect perceived enjoyment and satisfaction which in turn positively impacts and stimulates purchase intention in buyers. The abovementioned experimental studies indicate that the Metaverse business impacts the growth and development of the real estate industry by influencing buying behaviour of individuals in terms of increased presence, high interaction, perceived enjoyment, and satisfaction. While there has been increased popularity for the emergence of multiverse technology, the practical applications would likely require a few years to be fully functional.

C. Dubai Real Estate Market

Dubai's real estate market is very competitive, more than 84% of real estate experts stated that they expect that competition to get higher and deeper in the coming years [22]. In the same report, 68% of respondents shared that they had witnessed considerable growth in the Dubai property market during 2021-2022. Specifically, the average prices for residential properties boosted in Dubai by 11.3% in 2022 [23]. Despite this, the high competition and oversupply of properties are among the challenges in the Dubai property

market [24]. Moreover, studies [25, 26] indicated that the Dubai property market is highly unpredictable and uncertainty exists regarding price fluctuations due to economic, inflation and other pressures. Thus, there is a need to explore novel technology solutions to meet the changing demands and uncertainty in the real estate market.

D. Metaverse in Dubai Real Estate Market: Opportunities and Challenges

The main outcomes of Dubai's first-ever Metaverse event, the Metaverse Assembly are interesting and provide useful insights for real estate business [27]. The Dubai Metaverse strategy in real estate aims to enhance the shopping experience of real estate clients through Metaverse-friendly retail policies. The report also highlights regulatory initiatives such as Virtual Assets Regulatory Authority (VARA) to address the concerns related to security, investments, inclusivity, and infrastructure. The panel discussion related to opportunities of virtual real estate revealed that land unit prices increased from 20 USD in 2017 to 3500 USD in 2022 using Decentraland [27]. However, the need for ensuring data security and safety was emphasised by all the members followed by protecting the Metaverse from the monopoly of a few technological giants. Although the Metaverse is still in the adolescent stages in the real estate sector, Dubai has shown interest in exploiting endless opportunities through its Metaverse strategy. Nevertheless, the challenges and risks associated with Metaverse-friendly real estate should not be overlooked [28]. This may include but is not limited to technical issues of designing and developing a Metaverse environment, societal implications to ensure an ethical and safe Metaverse experience for everyone and privacy risks.

III. MATERIALS AND METHODS

The present authors view reality from a subjective outlook which is why interpretivism philosophy is selected. It means that reality can be different for individuals and might produce distinguishable implications. Positivism argues for static reality and aims to achieve the mathematical support of the findings, an approach that is best suited for confirming what already exists. However, the author has selected interpretivism to reach the desired profundity of the varied realities based on human interactions and experiences. In other words, the goal here is to reach new information which has not been examined extensively before. As for practical implications, interpretivism is the optimal selection because the firsthand data from the participants who have direct interactions in the real estate industry produces reliable findings.

A. Population and Sampling

The study has specifically focused on the case of the Dubai real estate industry to examine how the Metaverse has impacted it in terms of growth and development. Based on the non-probability purposive sampling technique, the researcher invited 15 individuals. Only knowledgeable and experienced individuals who have worked for at least 5 years in Dubai real estate industry were invited. The population included real estate agents and brokers who are working in Dubai real estate industry. According to Hennink and Kaiser [29], there is no static rule for deciding the sample size in qualitative study design. The focus remained on achieving the desired data saturation, Vasileiou et al. [30] suggested that 10-20 participants are suitable for qualitative studies as they can provide adequate data. A total of 10 participants successfully provided the data which helped in reaching the required diversity and richness.

B. Data Collection

The data collection process was facilitated with the help of suitable qualitative data collection tools such as a semistructured interview guide. A semi-structured interview is effective for containing nuanced data with the help of probe questions and loosely structured interview guides [31]. Table 1 shows the major themes and associated questions which were asked, and the route to reach in-depth discussion varied for each participant. The participants who agreed to face-toface interviews were approached based on a predecided schedule, the remaining provided data through the online software Zoom. The transcripts were maintained for all interviews, and the duration of each interview was between 45-60 minutes. The interview began with a question about the current employment position of the participant in the Dubai real estate market along with the number of years of service. A brief definition of Metaverse was presented to explain what it is and the participants were asked whether they are familiar with the concept. They were asked about an experience whether they engaged in a virtual world for property selling or buying and how was the experience.

Table 1 is included that contains the rest of the interview questions that were asked, the major categories include challenges to traditional real estate, changes in the Dubai real estate market after Metaverse, opportunities of Metaverse and challenges of Metaverse.

TABLE I. INTERVIEW QUESTIONS AND MAJOR AREAS AND THEMES

TABLE I.	INTERVIEW QUESTIONS AND MAJOR AREAS AND THEMES	
Major Areas	Interview Questions	
Challenges to traditional real estate	- Please share a recent experience of traditional real estate with a client to buy/sell a property in Dubai.	
	- How many viewings did it take for this property to be sold? How did you negotiate the price?	
	- In your opinion, what challenges are associated with the traditional real estate industry in Dubai? (Probe: Which of these challenges have you faced personally?)	
Changes in Dubai real estate market after Metaverse	 Please share an experience of selling or buying properties in the virtual world (Probe: How did you do it? How was the experience?) Please share the changes you may have observed in the Dubai real estate industry 	

Major Areas	Interview Questions	
	after the prominence of Metaverse technology.	
	- In your opinion, what factors may have contributed to this change in prices in Dubai	
	real estate market?	
Opportunities of Metaverse	- In what way Metaverse can help address the challenges associated with traditional real estate?	
	- Provide an example to describe how Metaverse technology has influenced the way people search and view properties in Dubai.	
	- In what way does, the Metaverse technology has influenced the way people search and view properties in Dubai?	
	- In what way does, the Metaverse may impact the demand for physical real estate properties in Dubai?	
Challenges of Metaverse	- What challenges may arise if Metaverse technology is incorporated into Dubai real estate? (Probe: what legal issues would need to be addressed?)	

C. Data Analysis

Thematic analysis was used for analysing the interview responses and making meaning of the data. According to studies [32, 33], thematic analysis provides a flexible approach to exploring novel information by delving deeply into human interactions. The trends and patterns in participants' responses are examined to retrieve rich and meaningful data. A six-step thematic analysis introduced by Braun and Clarke [34] was used as shown in Figure 1, the steps include familiarizing with data, developing initial codes, searching themes, reviewing themes, finalising such as defining, and naming themes, and producing a report.

The process of developing codes and reviewing the possible potential themes is demonstrated in Table 2. This

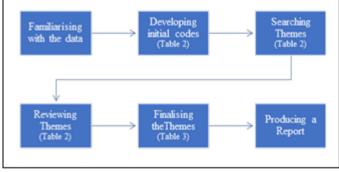


Fig. 1. Thematic Analysis Process, Adopted from [34]

summarizes the first four steps of data analysis of current data using the thematic analysis model.

Direct Quotes	Codes	Reviewed Potential Themes
"multiple viewings and multiple clients were involved with this deal, as a real estate agent I have learned to be patient with difficult clients" P5 "it was hectic, several clients visited that property and it went on and on to negotiate the price with final client" P10 " it's not easy to sell a house these days, the negotiations are cyclic you know and the efforts to let the clients visit" P3	Dealing with stubborn clients Price negotiation loop Physical efforts of multiple viewings	Client Management An iterative process of price negotiation
 "high competition, regulatory challenges, insufficient listing Personally, I have faced the issue of competition because of multiple players in the market." P11 "the property market in Dubai is 	Anxiety about uncertain market changes Tensions related to high competition Managing property sales during	Uncertainty of the competitive market
frequently changing and impacting the property prices" P2 "market uncertainty is always an	Changes to property laws and regulations	Uncertainty of property laws and oversupply

TABLE II. DEVELOPING CODES, IDENTIFYING AND REVIEWING THEMES

issue even with the heavy crowd of brokers "P8		
"I think the oversupply of properties led to the change in prices, as supply increased prices fell" P4		
"I have not really used any virtual platform for selling or buying properties" P6		
"heard about it it's a whole new universe with attractive opportunities for virtual property selling" P12		
"There are not many changes it's just the way people explore properties would change" P8	Incidents of price decline Attractive new virtual world for clients	
"prices in the area I am concerned with are not changed. Even after the emergence of Metaverse, I think it will	<i>Comfortable property exploring</i> <i>There is no novelty in the uncertainty</i>	Decline of property prices during the pandemic High interaction and an attractive virtual world
take time to see its impacts" P5	of the Dubai real estate market	Easy access to explore properties
"Metaverse has not necessarily only influenced the price changes in Dubai the market has always been this uncertain" P9	Disruptions of selling/buying properties in COVID	
"Recent years have been bad really. the pandemic brought so much damage with itself" P2		
" this could be great because many times clients are concerned about visiting property and they ask for pictures instead to avoid the efforts they could enjoy their presence in Metaverse with easy access to the listed property they're interested in" P1		
"demands are likely to get higher for even physical properties as I can reach to a wider audience to offer deals" P11	Increased connectivity between agents and clients Easy access to wide audiences	High connectivity among agents and clients
"once a deal was let down because the pictures were not great, the Metaverse could be amazing to show the property with a real-like experience" P7	Possibility of high demand for physical properties Increased presence and better selling/buying experience	
"the clients are going to feel that they are really visiting the property while sitting on their comfortable couch" P12	Creative showcasing of properties	
<i>"it just makes sense that as more convenient it becomes to search and visit properties from home the sales of physical properties may boost by showcasing it in Metaverse" P3</i>		

"it is still very early to say the demand for properties would increase or anything I still think the sales will be great with the virtual showcasing of houses in Metaverse" P6 "yeah as much appealing as it		
sounds, legal issues may arise, and the authorities need to think about property fraud. P12 " when I first heard about it I could	Anxieties about logal issues and	
only image how risky would it be with the rising identity scams and all" P7 "The buyers could be cautious about their privacy and security with the	Anxieties about legal issues and identity fraud Possibilities of Security and privacy breach	Security and legal issues
open interaction with strange brokers, this needs review" P10	The Risks of power abuse and Monopoly	Disparities and power abuse
"And what about the issues of monopoly and abuse of power? The virtual space could become just as suffocated as with the real world with rich and privileged." P1		

The retrieved potential themes were then finalised in the fifth step, Table 3 shows the formulation of final analytical

themes using the potential themes. The final themes were developed to increase the relevance of the research questions.

TABLE III.	FORMULATING FINAL THEMES

Reviewed Potential Themes	Defining and Naming Final Themes
Client Management An iterative process of price negotiation	Theme 1: Exhaustive Client Management in Traditional property dealing
Uncertainty of the competitive market Uncertainty of property laws and oversupply	Theme 2: Dubai market is highly competitive and Uncertain
Decline of property prices during the pandemic High interaction and an attractive virtual world Easy access to explore properties High connectivity among agents and clients Greater access to clients in other countries Creative buying/selling of physical properties	Theme 3: High Interactivity and Connectivity to International Clients in Metaverse
Security and legal issues Disparities and power abuse	Theme 4: Security Risks and Legal Challenges of Metaverse

The last step is to produce a report of the thematic analysis to inform findings.

IV. RESULTS AND DISCUSSION

A. Theme 1: Exhaustive Client Management in Traditional Property

Most of the participants found traditional real estate a hectic process that included endless negotiation of prices with clients. About 65% of the participants shared experiences of multiple viewings and dealing with difficult clients while trying to close a deal in a traditional real estate manner. As indicated by one of the participants who have worked as a real estate agent in Dubai for more than 5 years.

"... it is not easy to sell a house these days, the negotiations are cyclic you know and the efforts to let the clients visit..." P3

Another respondent stated that:

"Multiple changes are associated with traditional real estate, sometimes it is hard to find the right clients especially when there is an oversupply, the clients negotiate for lower prices and the prices eventually decline due to oversupply" P5

This indicated that Dubai's real estate market also faced the issue of declined prices because of oversupply in some areas. This gives a certain level of power to the clients who negotiate for buying the property at low prices. The participants generally considered the process of traditional real estate as unstructured and uncertain.

B. Theme 2: Dubai market is highly competitive and Uncertain

The majority, about 80% of the clients pointed out that they have faced immense competition in the real estate market. The participants were asked about the challenges associated with traditional real estate and which challenges they have personally faced. The competition was found to be among the major challenge, as one participant shared:

"...high competition, regulatory challenges, insufficient listing.... Personally, I have faced the issue of competition because of multiple players in the market." P11

Another participant stated that:

"...market uncertainty is always an issue even with the...heavy crowd of brokers..." P8

Previous studies [24, 26] also highlighted that there is increased competition in the Dubai property market. Apart from the high competition, the participants also pointed out that the Dubai property market is uncertain and unpredictable with the fluctuations in property prices and demands. Studies [24, 25] have also found that the Dubai market is uncertain and has faced an issue of oversupply and fluctuation of prices in several instances. One of the participants contributed to this with knowledge:

"I think the oversupply of properties led to the change in prices, as supply increased prices fell down..." P4

C. Theme 3: High Interactivity and Connectivity to International Clients in Metaverse

The potential benefits of Metaverse to address the challenges of traditional real estate were explored during interviews. Participants, about 40% claimed that they do not have direct experience with virtual reality-based property buying/selling, while 60% had an idea about Metaverse from the internet and social media. Although the participants acknowledged that Metaverse brings endless opportunities, the majority (65%) did not think that Metaverse has exclusively influenced physical property demands in Dubai.

"...Metaverse has not necessarily only influenced the price changes in Dubai... The market has always been this uncertain..." P9

One of the participants, a broker, also claimed that: "...prices in the area I am concerned with are not changed. Even after the emergence of Metaverse, I think it will take time to see its impacts" P5

Nevertheless, the participants majorly thought that Metaverse could have potential benefits for the way real estate transactions are conducted because of its high interactivity with the clients.

One participant said:

"It would be much better for me like the effort it takes to get clients to visit the property can be relaxed... and the notion of connecting to anyone in the world is just as amazing" P4

This indicated that real estate agents and brokers believed that Metaverse could provide easy access to international clients which is likely to increase the demand for properties in Dubai. The participants also felt that displaying through Metaverse would provide an opportunity to offer interactive deals for potential clients with the lowest negotiation cycle. About 40% believed that Metaverse would likely speed up property transactions. As shared by one of the interviewees.

"Demands are likely to get higher for even physical properties as I can reach to a wider audience to offer deals" ... "It would be much faster than what we do currently" P11

Overall, the participants' responses indicated that high interactivity and connectivity with clients using Metaverse provided the opportunity to reach international clients. Furthermore, almost all the participants (except one) claimed that Metaverse could positively influence buying/selling experience of clients. One participant implied:

"The clients are going to feel that they are really visiting the property while sitting on their comfortable couch" P12

Several previous studies [9, 22] have identified the benefits of using Metaverse and its influence on buying and selling experience for users. These studies indicated that the high presence felt by clients using Metaverse on the potential properties and the influence on their emotions can, in turn, stimulate purchasing intentions. The current findings also indicate that buying and selling experience of clients with

increased presence and easy access to exploring properties. As implied in one of the responses:

".. this could be great because many times clients are concerned about visiting the property and they ask for pictures instead to avoid the effort. They could enjoy their presence in Metaverse with easy access to the listed property they are interested in" P1

D. Theme 4: Security Risks and Legal Challenges of Metaverse

The participants were found to be concerned about privacy issues and legal concerns over property dealing using Metaverse. The majority, 80% were anxious about identity frauds, legal issues and scams which are inevitable in a virtual world always connected to the internet. One of them said:

"Yeah, as much appealing as it sounds, legal issues may arise, and the authorities need to think about property fraud" P12

Two participants also showed their concerns regarding the abuse of power and the possibility of monopoly in this virtual world. While most of the participants were concerned about the privacy of the clients.

One interviewee asked:

"How would the clients feel secure with the increasing cybercrimes and frauds?"

The previous studies [8, 20] from the literature review also highlighted that security and legal challenges are associated with Metaverse which needs exploration as the technology progresses from its early phases.

V. CONCLUSION

Metaverse is an expansion of the internet, as we know it, but its opportunities are boundless to transform how properties are sold and bought within Dubai. However, the associated privacy, security and legal challenges of a virtual world that knows no borders provoke us to think about all the things that can go wrong with Metaverse-friendly real estate transactions. To the best of our knowledge, this is the only primary study that focuses on the impact of Metaverse business on the growth and development of the Dubai real estate industry. Semi-structured interviews with 10 knowledgeable and experienced real estate agents and brokers in Dubai were conducted. It was found that Metaverse is not the only factor that influenced the changes in demands of physical properties. The responses indicated that the impacts of Metaverse on physical properties demands would become clearer with time, the Network effect theory potentially explains this. However, 9 out of 10 participants believed that Metaverse can positively influence buying/selling experience of clients. Moreover, the findings indicate that Metaverse has endless opportunities such as high interactivity and connectivity with international clients which can speed up real estate transactions. Nevertheless, 80% of participants shared their concerns about legal issues and property frauds that can negatively impact clients' trust. While 60% had an idea about Metaverse, 40% have never used Metaverse platforms. This additional finding provides implications for appropriate training and skills development of real estate agents and brokers in Dubai for integrating Metaverse successfully in its real estate sector.

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