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TRUST IN DIGITAL ASSET TRANSACTIONS IN A WEB 3 BASED METAVERSE

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Abstract

Metaverse is drawing the same attention that the internet had received during the Y2K era when internet was a new technology and still evolving. In the similar way, metaverse is still a long way from mainstream adoption and is constantly evolving. Web 3 metaverse or the open metaverse is decentralized using blockchain technology. With blockchain technology, also known as the "trustless" technology, there seems to be no need for the traditional trust concepts in exchanges made in the metaverse ecosystem. In this research, trust in transactions made in the exchange of digital assets in the Web 3 metaverse is explored.

Five traditional trust concepts, namely system trust, institution based trust, homophily trust, fast trust and performance based trust are taken into consideration and their dominance level was analyzed to know if they have an impact in purchasing decisions made in the Web 3 metaverse. To have a holistic idea of trust at play, trust in collaborations and business relations in the metaverse is also explored.

For this study, information was gathered by means of semi structured, in depth interviews with seven respondents. These respondents are all active in the metaverse, having made some transactions in the platforms.

The findings show that institution based trust or the trust in the brand is currently the most dominant when it comes to both transactions and collaborations in the metaverse even with the new "trustless" technology.

One of the contributions of this study is that traditional trust concepts still play a major role in the metaverse and categorizes the level of dominance of each trust type. The study also further confirms the previous literature based on institution trust and other trust concepts. Furthermore, several managerial implications are presented for businesses in the metaverse based on the conclusion.

Businesses should work on reputation management and establish a trust mechanism. This can be done through smart contracts with the help of AI that ensure safety, transparency, and accountability in transactions. Creating digital twins to encourage purchases at the beginning stages of business in the metaverse as the real world trust is carried forward to the virtual world of the metaverse is also important.

Keywords

Metaverse, trust, Web 3, Open metaverse, blockchain technology, system trust, institution trust, digital assets, NFT's, web 3 based metaverse, fast trust, performance trust, homophilic trust, Virtual reality, Artificial Intelligence.

Additional information

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1. INTRODUCTION

In this chapter, Web 3, the metaverse are introduced, and their growth explained in detail. Furthermore, the motivation and the justification for the research is explained. Finally, the research purpose, questions, methodology and the research structure are discussed.

1.1 Web3, the metaverse and digital assets

Web3 and the metaverse are the topic of discussion everywhere on the internet especially ever since Mark Zuckerberg announced the name change of Facebook to Meta and how it will work; although the metaverse has been in discussion ever since it was first mentioned in the science fiction novel, Snow Crash written by Neal Stephenson (Stephenson, 2003). Metaverse is drawing the same attention that the internet had received during the Y2K era when the internet was a new technology and still evolving. In the similar manner, metaverse is still a long way from mainstream adoption and is constantly evolving. First and foremost, web 3 based metaverse also known as the open metaverse is different from the Meta company and the main distinguishing feature is that web3 metaverse is a decentralized platform. Web 3 being a new concept is also considered as alike to metaverse. To define Web3, it is the combination of both its predecessors web1 and web2 where the contents created are in the hand of the creators and not platform owners. (Andy, 2022). One of the key features of Web 3 is the use of blockchain technology as it is the key to decentralization eliminating middlemen and enabling direct transactions to occur. Metaverse on the other hand simply put is a virtual space where users can interact with each other, engage with apps and services in an immersive way that has never been experienced previously. Gaming and entertainment industry are the ones currently reaping the benefits of operating the metaverse as of now. However, there is a huge potential of metaverse that is still under study and untapped which can change and revolutionize the current business models in operation today. It is a platform which is receiving considerable attention from the business world as it is going beyond the gaming industry. A metaverse platform can be 2D or 3D, although 3D is where the world is aiming at to have a complete immersion feeling in the virtual world. The metaverse is not simply a platform developed by one company, implying the usual constraints of monopolization, but rather a new plane of existence, not just void of control by any single corporation, but also free of incursions by any state entity or government. (Knox, 2022).

Marketing in the metaverse in many ways has already begun with virtual ads, brand awareness and purchases being made in some platforms. The global metaverse market is estimated to reach USD426.9 billion by 2027 at 47.2% Compound Annual Growth Rate (Metaverse Market, 2022).

With so much growth potential many advances are already being made, businesses are now redesigning their business models and strategies which will involve metaverse in them. With this arises many questions relating to business policies, governance, and security. Gavin Wood, one of the co- creators of Ethereum, visualizes a more decentralized web, defining Web3 simply as, "less trust, more truth." (Solis, 2022). Therefore, the trust factor in business relationships will have to be considered in the metaverse as the old traditional trust concepts might be revised. There is already a change that is taking place where trust is shifting to more non-human factors namely blockchain technology, when it comes to transactions rather than traditional trust in exchange theories (Tan & Saraniemi, 2022). As digitalization is making it necessary for us to routinely transact with complete strangers, there needs to be a way to establish a minimum level of mutual trust that will enable a transaction. (Vergne, 2021). This is where blockchain will be of help profusely since blockchain is said to be an internet of trust with promising characteristics that suggest it may become a revolutionary technology in regard to trust in exchange relationships. (Tan & Saraniemi, 2022). It is interesting to note that metaverse does not need blockchain to operate. As mentioned by Stanford University professor Jeremy Bailenson at a recent world Economic Forum panel, who said, "the consensus was that the metaverse could exist without blockchain" and used the example of the game second life, founded in 2003 that has digital assets being bought and sold. But, if the metaverse wants to live up to its fullest and the goal is decentralization, transparency, and platform interoperability then blockchain must be included. (Singer, 2022).

Metaverse in digital marketing sense is the new expansion of e- commerce or digital commerce, where experience enriched transactions are taking place and therefore moving from "click-buy" to "experience-buy" approach. E-commerce has a reputation of a lot of fraudulent activities in the past due to no transperancy in the transactions. Since businesses are in a transitional phase when it comes to entering the world of metaverse, there are a lot of questions than answers available. We know with the help of blockchain technology metaverse aims to be transparent and, hence creating a trustless environment.

Metaverse, also using the blockchain technology has given rise to a lot of digital assets that are being bought and sold in the platforms. Digital assets like NFT's which represent a broad array of items from virtual clothes, artwork, music, event tokens, avatars to land in the metaverse is another expansion of a brand and their offerings to the consumers. It is creating new revenue streams and new class of assets for all. In 2021, NFT traded totaled a whopping 17 billion USD, that is 21,000% from the previous year. (Sablah, W., 2023). With such an exponential growth in the market, there is a necessity to understand the technology, this new stream of revenue for businesses as well since unfortunately, with the advancement of such new concepts, comes advancements in fraudulent activities. Some of the questions that arises are - will digital commerce be the solution to the e- commerce problems faced in the past? Is the new trustless environment helpful to secure a system level trust? Does that in turn create fast trust? What about the institution based trust? Does brand awareness help in transactions in the metaverse? Also, does homophilic trust play a role in exchange and trust in the metaverse? A holistic view of trust, taking into consideration some of the few traditional types of trusts as mentioned above in the digital asset exchanges are explored in this thesis. Which trust dominates the most in the new "trustless" digital ecosystem of the web3 based metaverse market is analyzed. In this research, the metaverse is meant to be the web 3 based or open metaverse.

1.2 Motivation and justification for the research

We are seeing a surge in the usage of the metaverse in many industries now unlike a few years ago when it was only in the gaming industry that used its benefits. As mentioned in the introduction section, many industries are now trying their hand at the metaverse or just exploring the possibilities. Education, health, tourism, and other industries are already having some form of transactions and/or interactions made in the metaverse platforms be it open (Web 3) or closed metaverse. Many countries and cities are also entering the metaverse as part of their tourism strategy. One good example would be the Dubai metaverse strategy that is in place in their official UAE website. It is mentioned there that their mission and vision is to turn Dubai into one of the world's top 10 metaverse economies as well as a global hub for the metaverse community (Dubai metaverse strategy, 2023). They also aim to create and support more than 40,000 virtual jobs by the year 2030. USA, China, South Korea are some of the other countries that are trying to develop metaverse for their countries be it for tourism or economic development.

Therefore, we can see that there is a need for research about the metaverse both in industry and academia. Currently, when it comes to the metaverse, there are research carried out in terms of its definition, types, and the effects it has on the society as a whole. There also exists articles written about the metaverse in connection with ethics and governance. However, most of the articles regarding the metaverse are mostly found in the International Journal of Information Technology and Electrical Engineering or any other technically inclined journals. Also, most of these articles are related to the blockchain technology, AI and other technical concepts. In the Journal of Marketing, there were not many articles found that is related to the metaverse alone.

It is safe to say, there exists a research gap when it comes to metaverse in relation to marketing. Marketing research is limited to branding, brand research, luxury brands, impact of blockchain technology in the metaverse and now AI and metaverse etc. Moreover, the metaverse in discussion is mostly the 2D metaverse. When it comes to trust, there exists only about a general view of consumers regarding metaverse and their trust in the new platform. There are not much researched carried out regarding trust as a medium of exchange in metaverse when it comes to business relationships and consumers since it is relatively a new concept which means there is a need for more research in trust related topics from marketing and consumers point of view.

The closest this research can be compared to is research carried out about cognitive and affective trust and purchasing intentions in the metaverse (Zhang et.al., 2023). Previous research regarding trust and metaverse were quite general and not specific to the traditional trust concepts, especially not the concepts discussed in this research. In this research, five traditional trust concepts were taken into consideration namely, institution based trust, system trust, homophilic trust, fast and performance trust. Details and reasons behind the selection of these trusts are discussed in the chapter 2 section of this research.

Trust in this research have been segregated into five traditional trusts that exist in literature and compared to see which is more dominant when it comes to purchasing decisions made by consumers in the Web 3 based metaverse. As the world is moving towards Web 3 or open metaverse since complete immersive experience can only be felt in an open metaverse, research specifically on trust in Web 3 based metaverse is necessary. Previously, institution trust research mainly focused on interorganizational research work, there are a few research carried out based on online marketplaces and in social commerce aspects. There exists no research

regarding institution based trust when it comes to any type of metaverse. When it comes to system based trust, articles are mostly regarding blockchain technology or AI and not the trust aspect as regarded here in this thesis. Regarding homophilic trust, only one article could be found that has 3D avatars as salesperson and homophily researched but again, not on trust and how much it can impact a digital asset purchase. Fast trust is mentioned in articles related to interoperability in the metaverse which is connected to blockchain technology. No research however is conducted on fast trust and purchases made in any of the metaverse platforms. The same is seen in case of performance trust with previous literature. There is no research made in connection with purchases and performance of a business in any type of the metaverse.

With all the available research conducted regarding the metaverse, it is clear that research on trust should be conducted as understanding the metaverse and the platform in the context of trust is necessary. Metaverse is regarded as the future of the internet and the digital economy. With the vast potential of this platform, more research is necessary to get an in depth understanding and view rather than just the general understanding of the entire concept. With time metaverse is evolving by the day. These platforms are going to be one of the biggest sources of economic development, business expansion, source of income, investments, while bringing everyone together in communities. This means, that there will be more than usual transactions and exchanges made in the future than what we see now. Therefore, understanding how trust works in transactions, in exchanges amongst businesses and the end users and trust that plays a role in collaborations among businesses is vital.

Trust not just seen in a general form but taking into account each type of trust specifically into consideration will help achieve a better understanding of how trust is seen in the metaverse as a whole. It is safe to say that the way trust may be gained in the metaverse context is not really explored or understood. In the only literature on metaverse, trust and purchasing intentions, it has been seen that the perceived media richness of the metaverse builds cognitive trust and affective trust which in turn affects purchasing intentions towards shopping in the metaverse (Zhang et.al., 2023). However, what is the trust that is primarily at play that drives a transaction to occur is yet to be recognized. Which is why such research understanding of which type of trust is dominant or if at all they have an impact in purchasing decisions is necessary. This research will also help bridge the gap that exists currently when it comes to the metaverse and trust and business relations in marketing context.

1.3 Research purpose

We now know that there is no such research previously conducted when it came to different types of trust and exchanges made in the Web 3 based metaverse or even any other type of metaverse in that matter since metaverse and Web 3 are relatively new concepts. This research is a first of its kind. As seen in the previous sub section, there has been research made in the field of information technology regarding the topics but not as much in the marketing context. Therefore, there exists a big research gap in marketing regarding open metaverse. The purpose of this research is to study trust in digital asset transactions made in the web 3 based metaverse and understand their level of dominance in making purchasing decisions.

Since both blockchain and the metaverse are relatively new and futuristic technology, the study aims to identify if any of the traditional type of trust exists while making transactions. If so, which trust is dominant while purchasing digital assets in the open metaverse.

Additionally, the research seeks to explore other trust concepts that are possibly exisiting for transactions in the Web 3 metaverse. To have a better holistic understanding of trust, the research also explores trust in collaborations made in the metaverse and what can be done for future improvement.

Ultimately, the findings of this study will contribute to a better understanding of the role of trust, specifically which type of trust plays a major role in the Web 3 based metaverse transactions and help provide insights for digital asset providers and purchasers trying to build and maintain trust with their customers and sellers in the metaverse platforms.

1.4 Research questions and objectives

The goal of the research is to find if some of the traditional trust concepts are still applicable in the new technologically inclined metaverse platforms. If they do exist, then which is the most dominant type of trust that is currently helping in transactions of digital assets to occur. To fulfil this objective, the research aims to answer the following questions below:

There are two questions of the research, which are:

RQ1: To what extent do different types of trust (i.e., institution-based trust, system-based trust, fast trust, performance trust, and homophilic trust) play a dominant role in the transactions of digital assets in a web 3-based metaverse?

RQ 2: What is the relationship between different types of trust and their ability to facilitate collaborations in the metaverse?

By answering these questions using collected data a clear idea regarding the research topic on trust in transactions made in the Web 3 metaverse can be obtained. The research questions focus to find the dominant trust concepts in transactions made in the metaverse. The second question is to get a better idea about the holistic role of trust in the new platform and the trusts that are at play for collaborations in the metaverse.

1.5 Methodology

This is an exploratory, qualitative research where insights and current views will be gathered by the means of semi structured, in depth interviews. Semi structured interviews were chosen as they are flexible, omittable, and other questions can be added based on the context. There is a list of questions that has been prepared to be asked during the interviews which are mentioned in the appendices section of this research.

In this research, there was a total of seven interviewees, out of the which two were met face to face and others online via Zoom. Details of the interviewees are discussed in chapter 3 of this research.

1.6 Research structure

The research consists of five chapters, references, and appendices. The first chapter is the introduction of Web 3, the metaverse. The introduction section also mentions the research purpose, research questions and objectives and methodology.

Chapter two is the theoretical background where the history and evolution of web, the metaverse, exchanges, digital assets, and digital assets present in the metaverse, the various trust concepts that are taken into consideration in this research are defined with literature references related to each.

In chapter three, the methodology and the research design are explained in detail. This section consists of the research philosophy, research design, data collection and data analysis.

Chapter four is the findings of the research. Each trust findings are explained with the interviewee's responses.

The last chapter is the conclusion of the research. A discussion of the main findings reflecting previous studies are demonstrated here. The managerial implications and theoretical contributions of the study based on the findings is made. The chapter concludes with the research limitations and future scope of the research. The references and the appendices which are the details of interviews are listed at the end of the thesis.

2 THEORETICAL BACKGROUND

This chapter comprehensively discusses literature relevant to the research topic and defines the key concepts related to the research topic. First, recent literature on the metaverse, then the general trust in business, followed by the explanation of the specific trust concepts in literature, along with details on exchange, digital assets, digital assets in the metaverse are discussed.

2.1 The metaverse

As defined in the introduction, metaverse is a virtual space where users can interact with each other, engage in services in an immersive way that has never been experienced previously. Metaverse has gained more popularity in 2021-2022 especially after Facebook changed its name to Meta. However, in today's world, metaverse is made up of some immersive experiences thanks to the development of MR, VR and AR (mixed reality, augmented reality and virtual reality). Some of them can be experienced through the computer or the phones e.g., Roblox and some through more immersive ways using latest technologies like VR. Some occur in "mirror worlds" that duplicate real life environments (Anderson & Rainie., 2022).

For companies, this new platform will create a space for easier, efficient product creation, brand management, innovation, and development. (Bauerova et.al. 2022). With the advancement of the metaverse each year, it really is looking like the future of internet. This new and emerging platform is creating opportunities for businesses to extend their reach and connect to people in the virtual world (Wiederhold, 2022). Metaverse is said to be the future of business, which means an extension of the digital world where online purchases will be made in an immersive manner. Digital twins, a new way of revenue by business is already taking place. Metaverse is opening new sources for revenue and product extensions.

Many large corporate firms like Deloitte, Accenture, Boston consulting group etc. have understood the potential and the future scope of business in the metaverse therefore making considerable investments into it. Luxury brands like Tommy Hilfiger, Gucci etc. were some of the first brands to have entered the metaverse. Sportswear like Nike are already selling digital twins and NFT's. Celebrities like Mariah Carey are performing in the metaverse. Countries like South Korea announced the launch of "Metaverse Seoul". Anderson & Rainie (2022) in

their article has asked 624 innovators, developers, researchers and business and policy makers about the future of metaverse and 54% believe by 2040 metaverse will be much more refined, well functional, and fully immersive. Which means the metaverse's full potential will reach its peak by then. Which also means that the negative notion regarding decentralization and cryptocurrencies will also change.

One of the reasons mentioned in the article says that AR and MR technology will advance making it easy for metaverse to evolve. They also believe many of Web 2.0 problems will also be eradicated because of it. Therefore, as time goes by, with the development of technology, the number of people who will use the metaverse will also simultaneously increase. With this rise and demand, there also seem to be a simultaneous rise in the Web 3 based metaverse land and real estates. The land prices related to digital land have been on the rise, with fundings being arranged by real estates to help investors purchase land in the platforms. These funds help in purchasing online stores, hotels etc. which increases the value of the properties amongst the consumers (Katterbauer, et.al., 2022).

Therefore, there is a significant number of transactions taking place in the metaverse be it real estate, or retail which in turn is increasing the cost to attain spaces in the platforms. Jenkins (2022) in his study has seen that deep learning algorithms, digital neural networks, data driven decision making creates customer intelligence and hence enriches user's experiences in virtual spaces like the metaverse. It has been seen that artificial intelligence is being used to secure the diversity and rich content of the metaverse (Jeon, et.al., 2022). It has also been seen that the limitations of the blockchain technology is making integration in the metaverse unreasonable (Badruddoja, et.al.,2022). The blockchain technology augmented with AI promises to deliver a trusted metaverse for everyone (Badruddoja, et.al.,2022). Hence, now, it is seen that blockchain alone will not suffice for the "trustless" transaction to occur but with the help of AI, it can be enhanced and made more secure.

2.2 Trust in business

Trust has been an important factor in business, be it for relations building among the end users or for collaborations and partnerships. When there is any type of exchange, trust is needed and also created. Trust in online marketing is something that has been looked into by research ever

since online transactions has been thriving. Web3 metaverse can be considered as a part of social media since it provides a platform for people to connect, interact in a virtual space in a much deeper, as in immersive way than in web 2 social media platforms we are so used to. Therefore, the problems encountered in the web 2 social media online platforms will be carried forward to the metaverse while some problems will be eradicated. With uncertainty comes the issue of risk and trust. With the development of online social networks, there is an important problem users must face that is trust evaluation (Li et al. 2011). The increased uncertainty, complexity and turbulence in the business environment have awoken major interest in the role of trust among academics since the mid 1990's (Blomqvist & Seppänen, 2011). Trust is used in different aspects in a business relationship. There is however an agreement how trust is seen in a business generally. In a broader perspective, there can be three levels of trust- specific, public, and institutional (Clifton & David, 2013).

2.3 Trust in e-commerce

Trust has been a major issue when it came to e- commerce. There are countless number of fraudulent activities that were carried out during the rise of online shopping and are still exisiting today. Trust is also an important ingredient in a sustainable exchange relationship especially when it comes to e- commerce as there is greater uncertainty (Kim, 2014). In online shopping, the uncertainty is more. Also, having the payment done before a product or service is in possession increases the risk factor. In the case of e- commerce, the trustor is the buyer, and the trustee are the sellers (Lee et. al., 2018). A buyer is influenced by a seller's information on the product or service when they make the decision to trust the seller. To raise trust in the seller, providing specific and precise information is highly recommended (Lee et al., 2018). Halinen, (1994) has developed a process model for advertising and client relationship where she mentions critical factors for such a relationship are trust, transperancy in communication, coordination etc. where trust is more critical than commitment. Previous research has found that the pervasiveness of click fraud is due to a lack of intermediaries who track online advertising and provide third party measurement approaches capable of increasing trust and reducing some of the concerns. (Rejeb et. al., 2020).

2.4 Institutional trust

Institution based trust here, implies to the trust one has towards the organization, and the good will of that organization. It is a part of social trust where people place trust in people, organizations, and institutions. In marketing sense, it can be seen as the brand reputation. Institutional trust is required not only between inter organizational relationships but also between the organization and the end user. Institutional trust is the feeling of confidence towards a particular organization. It is how an organization is being perceived by the others and it depends on the reputation, good will etc. of the organization. It has been seen that when institutions are trusted, they increase the feelings of security and promote interpersonal trust among strangers (Guiliana et. al., 2020).

Donald (2013), in his article shows the greater the level of institutional trust, the greater is the online shopping satisfaction using mobile devices. Which can also be extended to the new digital commerce era. Suh and Houston (2010) argue in their research that a firm's reputation (i.e., central, enduring, and distinctive corporate associations held by individuals outside of an organization), although under-researched relative to trust, is more important than trust in impacting buyer–supplier relationships. With the era of Amazon, eBay etc., came a new form of institution trust. Due to the uncertainty of online transactions, the digital economy encourages the creation of institutional structures that assures online interorganizational exchange relationships (Pavlov, 2002).

When it comes to online purchases in e-commerce, the buyer at times has no idea about the seller, therefore there exists certain risks involved in such a transaction. Many third parties like Amazon, eBay etc. carry out the “institution based trust” for the buyers where they help to mitigate the risks, builds trust, and encourage online transactions. Now that there is no mediator or a third party needed with the help of blockchain technology, how much does the institution or the brand play a role in trust in digital asset transactions in the metaverse is analyzed since in the real world, brand reputation plays an important part in purchase decisions.

2.5 Fast and performance based trust

Fast trust is said to be the byproduct of social and system trust. When someone is willing to do a transaction, if they have trust in the institution or the system, they will eventually have fast trust making the transaction occurring faster. The perceived risk is less when you are familiar with the system and the environment. Being in a familiar environment or knowing the people you make the transactions with is a factor in gaining fast trust. With blockchain and decentralized trading, there is no third party in question. This allows control to be given back to the creators. Fast trust is seen when there is more advanced technology involved like the blockchain when it comes to transactions. Therefore, fast trust should be prevailing in the metaverse transactions as well.

Although performance trust is mostly used to see the relationship between the employer and the employee, where the performance of an organization is seen to be greater when there is trust and teamwork between the employees, performance based trust can also refer to the performance of the company in the market, which will affect the purchasing decisions of consumers. Blomqvist (2002) has spoken of fast trust and performance-based trust that are active in the Silicon Valley and ICT world where the rapid change in technology requires parties to take quick actions. He also mentions of how performance-based trust is open to outsiders which can be extended to other cultures and ideas. It plays a role of assurance that convinces a trustor to submit personal and financial information and to buy products or services from an unfamiliar seller (Lee et. al., 2018).

Trust changes depending on the experience and outcomes of the actions and interactions and other events taking place over time in the focal as well as in connected relations (Huang & Wilkinson.,2013). Hence, performance trust is important in business relations and transactions. In one of the research projects conducted by Yang (2016), it has been seen that, the performance based cues like the quality and speed of transactions affect the initial trust needed in web shopping in China. In the metaverse context, when an organization or even some individual creator is selling or buying NFT's, does the previous performance of a transaction affect the purchasing decision of the buyer and also does digital assets bought in the metaverse create fast trust is explored in this research.

2.6 System trust (blockchain technology)

System based trust as the name implies, is the trust one has, the reliability on the integrity, character, and ability of a system (Lemmergaard et. al. 2008). Recently, with the block chain technology evolving, it seems to be the answer to many e- commerce issues relating to breaching of privacy, fraudulent activities. This technology is rendering radical changes when it comes to transperancy and decentralization. Due to its characteristics, it is known as the "trustless" technology which indicates that it is so transparent, that the transactions made through it speak for itself. It can be a part of the epistemic trust where it refers to the people's trust in the scientific knowledge behind the technology in concern (Hu et.al., 2020).

Pennington et.al (2014) mentions in his research that one trust mechanism, vendor guarantees, has a direct influence on system trust. They also found that within the e- commerce ecosystem, system based trust places an important role. E- commerce and now digital commerce is a human to a system relationship where system level trust plays a vital role. With metaverse being an extension of the e- commerce, the changes and the traditional views of trust and trust needs to be reexamined. With the increase in the uses of digital assets, there exists a digital asset ecosystem. By defining tokens and the rules for their exchange, and deploying them in decentralized platforms, practically any process can be supported without the need of trusting a centralized third party (Choudhry et.al., 2018).

With the rise of virtual spaces and virtual worlds and digital artefacts such as crypto currencies the importance of trust may become the key issue of human interdependence and cooperation (Darijo et al., 2023). In the decentralized system, blockchain is used for transactions. The use of blockchain technology will make it easier for applications such as social networking to get authentic data in the metaverse. The data within the block cannot be modified or tampered with which makes it resistant to attacks. The transperancy of blockchain will also help digital twins resistant to attacks making it secure to share data within different virtual worlds (Thein et.al.,2023).

Trade in some of the famous metaverse platforms like decentraland, Sandbox and Axie Infinity are all done with Ethereum block chain except for Axie which uses both Ethereum and Binance smart chains. Transactions like purchasing land, in game product NFTs, in game reward tokens,

digital collectables etc. are being made daily where transactions are transparent, easy to use, robust, with speedy processing of each transaction (Thein et.al.,2023). NFT's and cryptocurrencies are stored in a wallet that is under control of the wallet provider (Diwadi et al.,2022).

Therefore, there is also a question of trust in the type of cryptocurrency and wallet in use. In this research, the level of system trust in digital asset transactions is analyzed. The promising nature of the blockchain technology seem to make system type the dominant trust while transacting digital assets. Does a metaverse running on a blockchain platform play a role in trusting the platform when it comes to transactions. Since its Web 3 based which is decentralized, it also encourages the use of crypto currency. The use of cryptocurrency in a platform may also play a role in trusting the metaverse platforms. If so, then does it matter which crypto currency is in use for the transaction of digital assets is also analyzed. Since according to the exisiting theories system level trust is present when consumers purchase digital assets in the open metaverse, taking system trust into consideration in the research was necessary.

2.7 Homophilic trust

With trust being the essence of any relationship, even in the business world, there must be some commonalities a business must possess among each other to make that connection, build a network, and finally build the trust. Enter, homophilic trust. Trust as an important social concept has gained a lot of interest among researchers and homophilic trust is one of them. Homophilic trust can be defined as the tendency of individuals to bond and associate with something similar that attracts them to each other to make a connection or even build a relationship.

The English proverb, "birds of a feather flock together" is a classic example of this. Many studies have shown that similarity builds connection as common characteristics (beliefs, values etc.) make communication and relationship formation faster, hence creating trust. (Toth, 2018). Social media allow content creation, generation, dissemination, and communication among communities of users (Wu et al. 2016). Since trust plays a crucial role in online users who seek reliable information, various social theories have evolved around trust to understand its

developments (Fazelpour & Rubin, 2022). Homophily is one of the most important theories that explain why trust relations are established (Tang et al. 2013). Homophily can be driven by many different dimensions of similarity for e.g., social identities, attitudes and beliefs, or values (Monge et al.,2003).

Homophilic trust can also manifest in different structural and behavioral effects like forming connections, trust relations etc. (Fazelpour & Steel, 2021). Metaverse currently is all about creating communities. In fact, marketing these days is storytelling and creating communities to make brand awareness and drive in revenue. Based on the interest map or personalized recommendation, users can find like-minded partners and establish social connections, thus building the virtual communities (Gai et al., 2023).

The Metaverse virtual community structure is more complicated than the traditional virtual community because it involves closer user relationships and the fusion of virtual and real scenes (Oh et al., 2023). Many scholars are saying the use of avatars in the metaverse will enable people to interact seamlessly in real-time within their social and workplace networks, which will bring about a sense of belonging (Diwadi et al.,2022). Metaverse creates communities and one such is the Discord instant messaging application. It is the largest metaverse and gaming related communities as of now where many likeminded individuals interact. Discord is said to have the most metaverse related enthusiasts. Therefore, taking into homophilic trust was a necessity.

2.8 Collaborations and trust

When it comes to collaborations, trust and all its components, is a necessary precondition (Blomqvist & Seppänen, 2011). Collaborations and communications are important values for the metaverse (Zackery et. al., 2016). It also gives users common purpose and allows the metaverse to continue as a society (Diwadi et al.,2022). Some of the many requirements of trust in e- business are confidentiality in sensitive matters, integrity of critical information, availability of information, traceability, transperancy, quality of goods, authentication of payment information and the management of risks to critical information (Jones et.al., 2000).

It was previously seen that to collaborate, having mutual trust is necessary. There exists a dark side to trust when a business gets too reliant on another and the other uses unfair advantages of that dependency. With the help of the latest technology, transparency and communication will eliminate such occurrences. This mean that collaborations should be done more easily and faster. It should also be easy to locate and collaborate within the targeted communities. Therefore, collaboration and trust was analyzed in this research to better understand the role of trust in the metaverse.

With all these available literatures it is clear that e-commerce has been dealing with various types of trust when it came to exchange relationships and how vital trust is in transactions not only the digital environment but also in the real-world exchanges. Therefore, metaverse, a new digital platform that aims to have transparent and trustless digital asset exchanges made should also to an extent influence the various types of trust that exists in business exchanges and relationships at present.

2.9 Brief history of web

The evolution of internet can be traced all the way to the fifties when the first "computer" was made. However, there is a difference between internet and web. The internet is a series of interconnected computer systems the web functions on (Terra, 2023). Web on the other hand is the sites and the pages you visit when you are online through the internet. Web formally was known as "world wide web". Here classification and evolution of web, from web 1.0 to the latest, web 3.0 is considered without going too deep into the technical aspect.

Web 1.0

Web 1.0 is the time between 1996-2004 (Choudhury, 2014). It is mostly the read only web and is the very first version of the internet. The creators were mainly the web developers and the participants, the content consumers. There were limited interactions in this era of web. It was more for people to find information with not many interactions within. To say it in layman's words, if you take any directory and make it digital, it is the Web 1.0.

Web 2.0

Web 2.0 in the other hand has more advance technology involved in it. It is the period between 2004- 2016. This is when it was less one sided and more into creation of content for participating and contributing. There were social interactions seen beginning to merge online. This is all about end users experience. The emergence of social media like Facebook, YouTube and other platforms were seen here. Many applications were built in for anyone to start creating content and interact with others online. At first, it was more social actions and content creation where it was not monetized. However, as when the technology got better, the emergence of e-commerce was seen, and businesses had to strategize incorporating social media and online transactions in business. With these arose the online security issues as data was now owned and managed by the companies in charge of the platforms. Since these are all centralized platforms, governments can intervene and shut down such platforms if they notice some illegal or harmful content being produced and spread.

Web 3.0

The era of the web after 2016 up until now is the era of web 3.0. The biggest distinction of web 3.0 is that it is the read-write- execute capabilities. It is known as the future of the internet. AI and machine learning help in evaluating data just like humans do. It is known as the semantic web which is a system that enables machines to understand complex human requests, based on their requests (Choudhury, 2014). The most important distinction though is its decentralized feature. It is based on blockchain. It offers users the freedom to interact publicly or privately without having an intermediary exposing them to risks, therefore offering people "trustless" data (Terra, 2023). Web 3.0 is used for metaverse, decentralized finance, blockchain games etc. The fact that it facilitates participation without any government body, is something considered as concern when it comes to privacy and other ethic issues. The full potential of web 3 is yet to be untapped and is evolving.

WEB 1.0	WEB 2.0	WEB 3.0
1996-2004	2004-2016	2016+
The hypertext web	The social web	The Semantic web
Read only	Read and write web	Executable web
One directional	Bi- directional	Multi-user virtual environment.
Companies publish content	People and companies publish content	People and companies build application through which people
Static content	Dynamic content	Still under development with AI and 3D virtual world, the web
Buddy list, address books	Online social networks	Semantic social information

Table 1 Differences between web 1.0 to web 3.0 in brief (Choudhury.,2014)

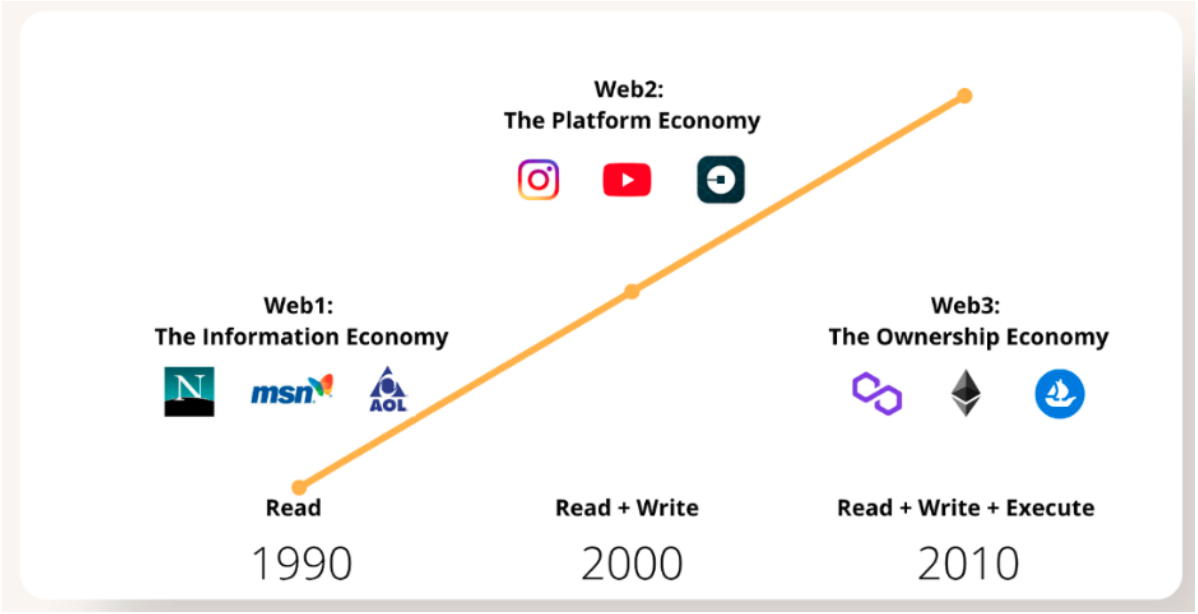

Figure 1 Evolution of the web (Chamria, 2022)

2.10 Exchange

Marketing exchange in simple words is the trade of good or services by two or more people. In the history of marketing, exchange was practiced ever since man understood value and the need to exchange something worthy starting from the barter system. Barter is known to be the universal mode of exchange and was practiced since hunting gathering cultures to capitalism (Chapman, 1980). With industrialization, exchange changed. We had the evolution of the fiat currency exchanged for goods or services. This has been the trend for decades until crypto currencies were introduced to the world with the introduction of Bitcoin by a computer programmer under the pseudonym, Satoshi Nakamoto in 2009. This created history as now, we have the blockchain technology and the metaverse that operates with cryptocurrencies. Now, exchanges can be done without any middlemen being involved and hence making transactions happen cheaper and faster. With the use of smart contracts each transactions made are being recorded in the blockchain that are immutable, irreversible, and transparent. Exchange has come a long way with the advancement of technology, demands and changes of consumers mindsets over time.

2.11 Digital Assets

Anything of value is known as an asset. Assets in business are the items of value owned by the company. It can be tangible like computers, equipment etc. or intangible like the reputation or goodwill, patents etc. With the advancement of web, there exists a new type of asset known as digital assets. Digital assets as the name implies are assets available online, created and stored digitally. Data, images, contents, videos etc. are some of the examples of a digital asset. However, with further advancement of technology, and with the introduction of blockchain technology and cryptocurrencies digital assets are now redefined (Frankenfield, 2022). Apart from the traditional digital assets that existed, now we also have decentralized digital assets. NFT's (non- fungible tokens), tokens, cryptocurrencies, crypto assets, tokenized assets etc. are all decentralized digital assets. These digital assets are created or "minted" when new information is added to a particular blockchain. Through these entries the users can exchange or mint new ones (Pwc, 2023).

2.12 Digital Assets in the Metaverse

There are a few digital assets that are being traded in the metaverse creating a virtual economy. Only when there is a transaction taking place is when the trust element is highly needed. Currently in the metaverse the following digital assets in the form of NFTs are being traded. It is important to note that the metaverse and the technology behind it is evolving, therefore there might be new additions later with time.

2.12.1 NFT

NFT stands for non-fungible tokens. Fungible is when a thing of value can be replaced by another, for e.g., money. A 10 Dollar bill can be replaced by another. Non fungible is the opposite. It cannot be replaced and is unique. With the help of blockchain technology, NFT's are created which gives it powerful ownership attributes. The images, videos, or other data is differentiated through 1-1 token ID in its unique contact address. The image itself is not saved in the blockchain, which is not possible. Rather, it is the location and the ownership of the NFT that is stored in the blockchain. Unique digital art, music, digital wearables in the metaverse, collectables, digital twin of physical products, in- game assets like skins, weapons etc. are all NFTs.

Speaking in a more technical point of view, Ethereum created an open standard for issuing NFT's called ERC-21 in 2017. Some of its features are:

1. Tokens cannot be combined or divided.
2. Can have only one owner and can only belong to a physical address- users wallet or smart contract.
3. Minted tokens must follow a special protocol for any transfer of ownership to ensure safety (Choudhry et.al., 2018).

NFT tokens are also used as event tokens for concerts, events etc. which are also considered as digital asset.

2.12.2 Land assets

Land assets or real estate in the metaverse for e.g., in Decentraland, "lands" are traded in the metaverse as form of NFTs. These are virtual land you can own in the metaverse and can be used to host events, games, marketplaces etc. in the platform. These days real estate world has also merged with the digital real estate. The Meta Mansion for example is a real-life Miami home with an identical virtual mansion in the metaverse that is listed for auction early this year.

The purchaser or the home will also acquire ownership right to the NFT asset (Armstrong, 2022). In technical terms, ERC-94 was introduced as an extension of ERC-721 which was used specifically with the use case of Ethereum based registration of land and physical property in mind (Choudhry et.al., 2018). Purchasing of land in some of the famous metaverse platforms has been on the rise and such platforms now are very expensive. Below figure is a bar graph representation of the sale value of land in some of the famous web 3 metaverse platforms.

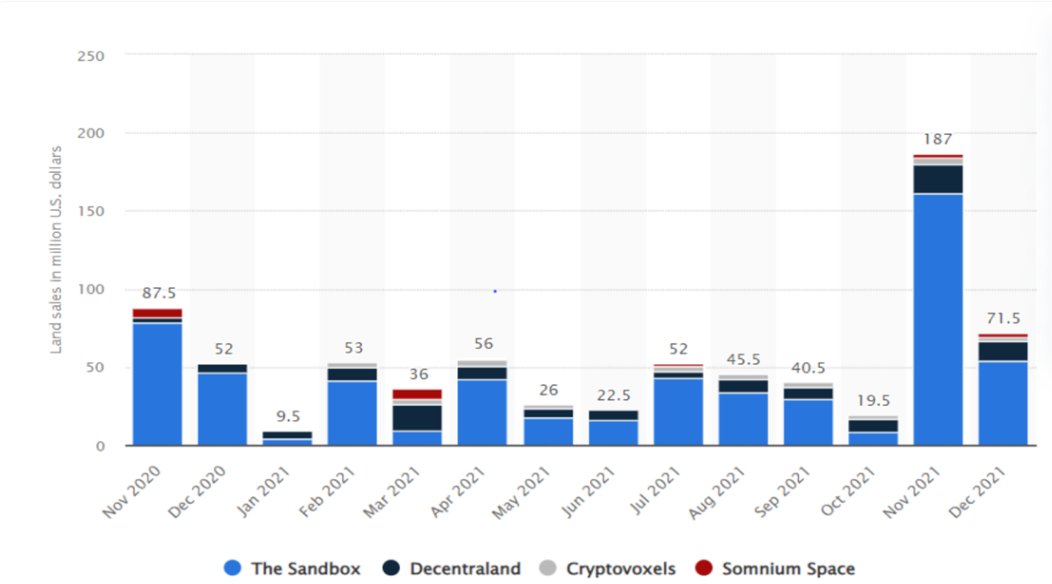

Figure 2 Sales value of virtual real estates in The Sandbox, Decentraland, Cryptovoxels and Somnium Space from November 2020 to December 2021 (Statista,2021)

2.12.3 Cryptocurrencies / Metaverse tokens

Cryptocurrencies or crypto is any form of currency that is available online or virtually. They use decentralized system to record transactions. They run on distributed ledger, the blockchain where all the transactions are recorded. Some of the famous cryptocurrencies are Bitcoin, Ethereum, Solana, Ripple, Litecoin etc. Cryptocurrencies are used in the web3 metaverse platforms as the currency or digital asset to transact and they are known as metaverse tokens. Each metaverse platform uses different cryptocurrencies or create new ones for e.g., MANA is the in-game and cryptocurrency of Decentraland, and APE coin, is one of the newest and fasted growing metaverse coins for the APE metaverse.

3 METHODOLOGY AND RESEARCH DESIGN

In this chapter we will describe the research methodology, which consists of research philosophy and approach to theory development, research design, and the chosen method for data collection. Also, in this chapter, a detailed description of the sample and the analysis of data are presented.

3.1 Research philosophy

A research philosophy is a set of basic beliefs that guide the design and execution of a research study. Different research philosophies offer different ways of understanding scientific research (Poucher & Tamminen, 2020). The research philosophy shapes the methodology, approach and ways in which data is gathered (Saunders et al., 2015, p. 124). There are five major research philosophies that are dominant in the business management research, namely: Postmodernism, pragmatism, critical realism, positivism and interpretivism. Postmodernism is a subjective philosophy which emphasizes the role of language and aims to give voice to alternative or deprecated views. Pragmatism focuses on making scientific progress using variety of methods. Critical Realism claims that reality is much more than our senses allow us to see, preferring to focus on the bigger picture. Positivism focuses on the observable reality and aims to produce law like generalizations and finally interpretivism is a subjectivist philosophy that focuses on studying the people and the meanings they create (Parila.com). Interpretivism often associated with qualitative research, is a philosophy that argues that social worlds with humans, should be studied differently than physical phenomena (Saunders et al., 2015, p.140).

The goal of research following the interpretivist philosophy is to obtain a rich understanding of social worlds (Saunders et al., 2015, p. 140). There has been research made about digital assets and ethics and governance. However, no research has been conducted in the marketing field when it comes to trust in transactions made with decentralized digital assets. The goal of this research therefore is to find which trust is dominant when it comes to digital asset transactions being made in the metaverse. Since metaverse is a social platform where interactions and transactions are being made, interpretivism is ideal for this research topic.

3.2 Research design

Based on the research philosophy a research design is developed. A research design is a framework in which researchers decide the strategy, methodology and way of gathering data. The design of a research plan should fit the general goals of the research in question and are thus a critical starting point for the research as a whole (Saunders et al., 2015). The research goal here is to understand the type of trust that works in transactions made in a metaverse platform. Therefore, the ideal research type is the qualitative research method.

Qualitative method of research involves collecting and analyzing non- numerical data to understand concepts, opinions, and experiences (Bhandari, 2020). It is used to gather in-depth insights into a problem or generate a new idea for research (Bhandari, 2020). There are various ways to collect data for qualitative research method. Interviews and focused groups are the most common methods. Structured questionnaires are also used. Data is later compared to each other.

In the in depth interview method of quality research, there is one on one conversation held with people which could be face to face or online to understand the persons perspective on the research topic. In depth interview is an effective qualitative method for getting people to talk about their personal feelings, opinions, and experiences (Milena, 2008). The data collected are studied in detail and therefore the number of subjects interviewed or attending a focus group is usually small in quantity compared to qualitative research method.

Inductive reasoning entails using existing knowledge to make predictions about novel cases (Hayes & Heit 2018). Inductive reasoning is a method of reasoning which involves using specific observations, evidence, or patterns to make a broad assumption or conclusion.

Therefore, qualitative research method of in depth, semi structured interview with inductive reasoning is done in this research. The aim is to conduct an interpretive study of the research topic.

3.3 Data collection

To understand the type of trust that dominates in transactions made with the advancement of new technology, this study aims to collect data from persons having had transactions made in any of the web 3 based metaverse platforms. To do this, interviews will be conducted with each respondent. As mentioned in the research design section, in depth, semi structured interviews will be conducted for this research.

3.3.1 Interviews

Interviews are conversations between two people to gather information and perception about certain topics in discussion. There are several types of interviews. They are structured, semi-structured and unstructured interviews. Structured interviews are usually conducted for quantitative research method. Semi structured and unstructured are conducted for qualitative method of research. Unstructured interviews are where the respondent is free to talk about any topic and has no list of questions. It is also informal. Semi structured is where there are a few specific questions which the researcher can omit, edit, or change the order and can also ask a few additional questions to get the view of the interviewee. There is a possibility to understand in depth, the perception of the topic and know not only the "what" and "how" but also "why". The questions are more open ended. This type of interview is most advantageous in situations where the studied topic is complex or open ended (Saunders et al., 2015, p. 391). Due to this, semi structured interview method is used in this research topic.

Semi structured interviews have a lot of advantages like details and richness of data due to open ended type of questions asked. It is also known as the best of both worlds since it combines elements of both structured and unstructured interviews. However, there are a few disadvantages as well. One, there is a high risk of research bias that is seen in this type of interview. Two, the open ended questions can lead to observer bias and also create social desirability bias, which is when the respondent gives answers, they think you want to hear (George, T. 2022). An interviewee may not be completely comfortable with a semi-structured interview leading to the interviewee possibly not telling all they know, limiting the ability of exploring the topic (Saunders et al., 2015, p. 397). Another disadvantage is it is difficult to develop good semi structured interview questions.

To limit the impact of these biases, interviews were conducted online via Zoom and some face to face at a time they were available. The interviewer maintained a high level of flexibility when it came to the availability of the interviewees. Questions and definitions were given in advance to them, so they better understand the research topic. It was important to make sure that the interviewees were people who have transacted in the Web 3 based metaverse previously. The goal ultimately is to discover new insights and understanding how transactions are made in the platforms by answering the primary and the five sub questions that were introduced in the introduction chapter.

The subjects of this study are seven individuals who were interviewed in Finland, the USA and Bahrain. Their work is in the metaverse and/or they are individuals in academia and research who have deep interest in the topic and have experience making transactions in the platform. One of the individuals is a top metaverse marketing specialist in USA as of now and another interviewee works for the technology department in the pentagon in Washington D.C., USA who is also active on the platforms. In Finland, one of the interviewees has been a marketeer for the last decade and is looking into metaverse transitioning prospects in the country. One interviewee from Bahrain, is an active gamer in the metaverse and other VR platforms. Details of each interviewee are mentioned in the below sample section.

Consent was taken before the interviews, and they have all agreed their views to be anonymously mentioned in the thesis work. The interviews were conducted between March and April 2023, according to the time they were available. Each interview lasted between forty five minutes to over an hour at the time specified by them. A set of questions regarding the metaverse, trust and transactions were all discussed along with other general information about metaverse and marketing in the platform. The questions were categorized into general, research topic questions (types of trust and which plays a role in transactions), and other questions are the additional questions asked to understand their holistic view of the metaverse and business, like trust in collaborations in the metaverse. The questions asked are in the appendices section of this thesis.

The conversations were recorded with their permission to transcribe at a later time. The app Otter.ai was used to record and transcribing is done through the NVivo software. NVivo is also utilized in the analysis of the final data and its outcome.

3.3.2 Sample

The sample of interviewees were seven individuals active in the web 3 based metaverse platforms. Two interviewees were contacted via the social media platform, LinkedIn. Several direct messages were sent to many people that included "metaverse". "Web 3" in their account descriptions. Unfortunately, many were found interested in the topic but not active in the platforms. Two best suitable for the research was selected from the many that responded.

Five other interviewees are the people from the researchers own network which covers people in research, marketing managers and individuals active in the metaverse platforms. The researcher aimed at interviewing different occupational people of different age groups to get a wider perspective of the research topic. Below is the table of all the interviewees for this research including their country of residence, current occupation, interview type, and the duration of the interview.

Interviewee	Current position	Country of residence	Interview duration	Interview type
Respondent 1	Key Account Director, ICT sector	Finland	1 hour 30 minutes	Face to face
Respondent 2	Researcher at the University of Oulu	Finland	40 minutes	Online via Zoom
Respondent 3	Marketing Director	Finland	1 hour	Online via Zoom
Respondent 4	Researcher	USA	45 minutes	Online Via zoom
Respondent 5	Director of brand partnerships	USA	1 hour 30 minutes	Online via zoom
Respondent 6	ICT Manager / UI/UX Designer	USA	45 minutes	Online via Zoom
Respondent 7	Student	Bahrain	40 minutes	Face to face

Table 2 Interviewee list

Respondent 1 is a Ph.D. graduate from Finland. He is currently working as a Key Account Director, ICT sector in Oulu. He is a blockchain and metaverse enthusiast having done transactions in the Web 3 metaverse platforms. He has experience in conducting many events related to metaverse, AI and blockchain. He is also part of many similar groups and associations.

Respondent 2 is a Researcher, adjunct professor in Business analytics and digital business at the University of Oulu. She has researched blockchain technology and is interested in AI and Metaverse. She is active in creative digital industries, ICT, and healthcare. She also holds a D.Sc. in International Business. She is inclined towards studying the blockchain technology, AI and metaverse in detail and their impact on businesses and the changes it might create in future business models.

Respondent 3 is a Marketing Director for the past decade at a Finnish company dealing with marketing, digital marketing, project management etc. He is currently working into getting his company in the metaverse and has also transacted in the platforms many times. He is a metaverse enthusiast who also wants to work on getting Finland as advanced as the USA when it comes to blockchain, metaverse, VR and AI technologies.

Respondent 4 is a researcher, at a university in USA who is working towards open metaverse and AI. He is also a part of Metaverse Standards Forum. He has rich knowledge about the research topic and has strong opinions regarding metaverse and AI technology.

Respondent 5 is a director of brand partnerships for a language learning company in the metaverse located in USA. His company operates in the 2D metaverse and helps in collaborations of global businesses to reimagine their brand in the virtual world of the metaverse. He is more interested in the VR aspect of the metaverse as of now. His company is working towards operating in the Web 3 based metaverse since ultimately that is where the world is heading. He has experience transacting and exploring in the open metaverse platforms.

Respondent 6 is an ICT manager and UI/UX designer working at the US capitol. He is a metaverse enthusiast and has been having several transactions done in all types of metaverse. His expertise however is in Oculus which is why Web 3 metaverse is of interest to him.

Respondent 7 is a UK graduate now living in Bahrain. He is a student currently pursuing his masters in computer science. He is also a gamer. He is quite active in the metaverse. He has experience in transacting and exploring the metaverse with his friends. His interests include metaverse, AI, VR and the gaming industry. He is also very active on discord, a famous, free chat application for gamers, which is also the primary channel for web 3 metaverse enthusiasts.

3.4 Data Analysis

To analyze the data, thematic analysis approach was used in this research. Researchers can identify themes or patterns in the data collected to be analyzed further. It enables the researcher to focus on the research questions to find answers. It is flexible and a systematic way to analyze qualitative data.

The process of thematic analysis consists of first gathering the data in this case through the in depth interviews and later transcribing them. The online interviews were recorded in Zoom and the face to face interviews were recorded via Otter.ai, an artificial intelligence based solution that automatically turns speech into text. The researcher then verified the correctness of the recordings and the texts transcribed.

The coding of the data, which is the next step in data analysis, was done using the NVivo software which allows to gather and analyze qualitative data. Codes are labels under which a data can be categorized. This could be a word, a sentence, or a full paragraph. By coding the data, the full meaning of it can be extracted in a comprehensible and efficient manner (Saunders et al., 2015, p. 581).

Based on these codes, a theme or pattern is identified. Details of which are discussed in the upcoming findings section.

4 FINDINGS

In this section, the findings based on the data analysis is presented. It is further subdivided into six sections according to the trust concepts in this research and other related findings that could impact a business in the metaverse. First, focus is on the trust concepts in the metaverse.

4.1 Institution based trust

As mentioned earlier in the research, institution trust or the trust in the brand is the goodwill of the company that operates in the market. After interviewing all the seven respondents, it is evident that institution based trust is what dominates currently in the open metaverse transactions. All the respondents agreed the brand name plays an important role in decision making for a purchase. The trust in the brand comes first and foremost even before system trust (blockchain technology). Following are the responses of the Respondents when asked about institution based trust:

"It is the institution based trust that will and is attracting people to make transactions right now in the metaverse."- Respondent 1.

"Institution based trust is also crucial. It is easy to shift to metaverse as brand awareness is already there. Users look into institutional based trust and system trust. Right now, institutional trust that already exists in the real world is easily moving to metaverse. In the beginning like right now, this plays a role in having transactions made as the trust already exists." – Respondent 3.

"Institution based trust in the metaverse is more intense and is dependent for a transaction to occur." – Respondent 2

"For a consumer, institute based trust plays a larger role in making transactions in the metaverse. When there is a known brand, there seem to be more trust than trusting the system it operates in. Brand name plays a vital role." – Respondent 6

"When a transaction is being made currently, institution based, and system based trust are more prominent than any other form mentioned here." – Respondent 4

"We have a tendency as humans to feel comfortable with the known than the unknown. So going into a platform where your known brand is available is more "safer" to explore than one you don't know about. We basically work towards brand assets to implement them in the metaverse. So, this goes to show how important institution based trust is in there." – Respondent 5

"As a gamer, we look into the brand more than the system it operates in. When I make a transaction, I only look at the brand of the NFT I'm purchasing. Not the system. I know there is blockchain, but it does not affect my purchasing decisions." – Respondent 7

With the above mentioned comments, it is clear to see how the brand name and reputation plays a vital role for transactions to be made in the unknown platforms like the metaverse.

4.2 System trust

System based trust is the trust in the system that a platform operates in. In our case, it is the blockchain technology also known as the "trustless" technology. After the interview, it is noted that this form of trust is the second most dominant when it comes to purchasing decisions. The respondents had the following to say about system based trust:

"System based trust is crucial and blockchain being immutable helps a lot in trust creation. Needed for a healthy relationship between brand and consumer. The link is more direct in the metaverse." – Respondent 3.

"System based trust is not so much when it comes to consumers point of view. Now, with more advanced technology we know that blockchain technology is mutable and it is what the person inserts in the system. So, trust in blockchain is also questionable at times." – Respondent 2.

"System trust is more dominant for B2B rather than B2C. People know blockchain and know it is transparent or some don't even know what it is. These people who transact in a metaverse

platform are usually youngsters and Gen Z's who are not interested in the system but in the brand awareness." - Respondent 6.

Respondent 1 had an interesting observation regarding system trust. Since the metaverse is in a transitional phase, He mentions,

"To earn system trust for many who do not know or understand the blockchain technology and the controversy associated with crypto, many platforms are having the option to pay via traditional online transactions like using credit/debit card. The aim is to get people to explore the platform. The trust in the system is already there for someone aware of NFT's and what value it holds. Gamers and others already in the platform understand blockchain technology and to them the system trust will work more when it comes to exchanges."

Respondent 5 also works with sponsorships in the metaverse for companies. He said:

"It is the lack of trust in the system (blockchain and crypto world) that there are not many businesses interested in these platforms. They are open to Web 2 based metaverse where only VR is used to expand the product line."

Respondent 4 being a researcher in AI and the metaverse said:

"*System based trust will be more "trustable" by all if AI and deep learning is implemented. To make the system based trust more trustable as there are new blockchain mutability possibilities being made, needs the help of AI to enhance it. AI can help detect fraudulent activities. They can be the gate keepers, in a sense virtual world will need to prevent bad actors from acquiring the digital assets or prevent avatars that are not appropriate for entering the platform."*

Crypto currency used in the platform along with system trust was the sub question. The findings are as follows:

"Cryptocurrency does have an effect in trusting the system. It plays a role in trusting the platform". – Respondent 3

"Cryptocurrency – plays a role, yes, in trusting the platform but more than that the institutional trust is more prevalent." – Respondent 2.

"Due to the volatility of crypto, purchasing a NFT or any digital asset play role in purchasing decision however, it is a risk just like in trading stock so sometimes we buy and resale when we think the time is right. But purchasing due to which crypto is used does not affect our decisions." – Respondent 7.

"Crypto currency used in the platform does not seem to affect much since the platform is known and trusted, the trust is automatically there" – Respondent 1.

"Cryptocurrency and blockchain with the negative impact associated with it, does not affect the purchases. People who want to avoid it, will avoid transacting or even exploring these platforms" – Respondent 5.

From here, we find that crypto currency does not impact the system trust as much.

4.3 Performance trust

Performance of the brand in the metaverse and in real world plays a role in decision making for a purchase. There are mixed opinions about what influences performance trust and to what extent it plays a part in decision making process.

"Performance trust is more likely because of institution trust, the performance in the real world plays a role in the trust in the current metaverse platform." – Respondent 3.

"Fast and performance trust is created with the help of system trust in the metaverse."- Respondent 2

"Performance trust plays a role in the first purchase but it's the brand name that is more trustworthy." – Respondent 7

"Due to the transitional stage of metaverse with new technology, performance trust does play a role in purchasing decision of any digital asset and block chain technology makes it easier to build it." – Respondent 4.

Therefore, we can see some opinions are that the institution base trust plays a role while others say system trust plays a role in creating performance trust but it is not the direct reason for trust to make a transaction.

4.4 Fast trust

Fast trust is created when the purchaser is aware of the product, the brand, and the system. It is usually created when the purchaser had already purchased a product or service from the seller before. In the words of the interviewee's:

"Fast trust is inherent to the system." – Respondent 3,

"Fast trust is created through institution based trust mostly in consumers than system trust. Having no third party involved is a benefit" – Respondent 1.

"Fast trust is built over time as when we buy and build a trusting relationship with the seller. Having no third party in purchases helps create fast trust" – Respondent 7.

"Institution based trust creates fast trust in the metaverse and the performance based trust is applicable if the brand was prevalent in the platform for long time or in the real world for a long time." – Respondent 6

"Fast and performance trust is created with the help of system trust in the metaverse."- Respondent 2.

"Fast trust is definitely created first with the institution based trust and then the system. There is some level of trust already exisiting when you know the brand and purchase a NFT from them. So fast trust is automatically created before the transaction is even made!" – Respondent 5.

We can observe that like performance trust, there is also a difference in opinion about fast trust. Some are of the opinion that fast trust is associated with institution based trust and some think system trust is directly related to fast trust. It can be said fast trust is created in digital asset purchases as everyone said having no third party involved is a benefit and help create fast trust. The performance of the previous transactions creates fast trust. But it does not alone have an impact on purchasing decisions.

4.5 Homophily trust

Homophily trust does not have much of an impact like institution or system trust. Homophily trust plays a role in purchasing decisions when purchasing only for the first time as per the data.

"Homophylic trust is there to an extent. I believe it will be more dominant as when metaverse expands and becomes used much more like the internet today. Since it is in the beginning stage, this trust I believe doesn't play much role for a transaction to take place." – Respondent 2.

"Homophilic trust – is high in metaverse. It's like recommendations given in the outer world." – Respondent 3.

"Homophylic trust is needed when it comes to getting someone to enter the metaverse as in transition into the platform. Once they are in, it is the institute and system trust that works." – Respondent 6.

"Homophylic trust is prevailing to an extent in the metaverse this can also be misused. AI will help prevent such fraud or scamming activities, therefore increasing homophylic trust at a later point."- Respondent 4.

"Homophylic trust if you see is prevailing in the gaming community. So yes, it plays a part but not entirely." – Respondent 1.

"Homophylic trust is also what we are working on to gain customers and enhance their experiences."- Respondent 5.

"Yes, if a friend says particular NFT is good to purchase, I go ahead and purchase it at times but don't entirely rely on the recommendation" – Respondent 7.

Homophylic trust according to this finding is that it does play a role but not as much as any other trust concepts compared. It, however, plays a vital role in influencing someone to enter and explore the metaverse but when it comes to purchasing decisions, homophylic trust alone does not impact decision making process.

4.6 Trust in collaborations and other business factors

Metaverse being a relatively new platform undergoing constant changes where its potential is not yet being used to the maximum, there was also an interest to know what factors contribute to creating collaborations and other business activities in the platforms and what role trust play in collaborations. These are the views of the interviewees:

"B2B is still in early stage, there is a lot of experimentation going on. It is still operating like we do in the real world. So, the collaboration and trust so far are the same as the real world. There are more collaborations going on in the metaverse. The mutual trust is more crucial than between users and user brand." – Respondent 3.

"Since it is in an early stage, the collaborations will take a while to happen but trust in traditional businesses plays a role now in collaborations." – Respondent 2.

"The world is not ready for metaverses potential yet. When it comes to collaborations, I believe there will be a lot of consultancy companies dedicated to having businesses enter the metaverse for business. Which means we will see big companies approaching such consultancies to help when venturing into the world of metaverse. They will take the product, use the technology to enter the virtual world market. Right now, things are a kind of abstract but with AI it is going to get better." – Respondent 1.

"Collaboration wise, many companies think it is a lot expensive especially with the current state of the economy to enter the platform. They think metaverse is a buzz and the hype will

soon die down. A lot to be considered for ROI which is a problem and many companies I know says they don't need that right now."- Respondent 5.

From all the data we understand that even for collaborations to occur, real world brand reputation, mutual trust is highly important. Therefore, currently institution based trust plays a vital role in business transactions and relations made in the open metaverse platforms.

4.7 Conclusion of findings

With the above findings institution based trust that is the brand reputation is quite necessary currently for any transaction to occur in the open metaverse. Since it is in the beginning stage of development, the reputation in the real world is carried forward to the virtual world of the metaverse.

Currently what the metaverse platforms needs is the awareness to navigate consumers to make transactions happen in the platforms. To help with the transition, institute based trust, system trust and homophilic trust plays a vital role. Homophilic trust helps create a community in the platform helping more consumers explore the virtual world. The more users interact and form relationships, the more sense of trust and accountability within the community develops. This will help create homophilic trust where users will feel comfortable transacting with each other. It has also been found that digital twin is very important for new brands entering the metaverse since the product is also available in the real world, the connection to the real world creates trust.

Furthermore, many companies are expanding their product line and exploring the metaverse world but not through the open metaverse platforms, but through the Virtual Reality world of web 2 metaverse since many are not yet comfortable with blockchain technology and crypto currencies. Some businesses find these unknown factors too risky and hence refrain from entering the open metaverse. Another factor is the cost of entering and building a Web 3 based platform or renting space in one is also something that makes businesses, especially small business refrain from exploring the possibility of entering the platform.

The right approach now is to make more people enter and explore the metaverse, show how it works and slowly gain their trust to make a transaction to occur. Overall, trust in transactions will be built through a combination of social, technological, and reputational factors along with the development of the metaverse ecosystem over time.

4.7.1 Metaverse and AI

It is important to note that the advancement of AI is affecting the growth of the metaverse. Currently, metaverse is on hold and many are investing in AI. However, this advancement will be of help in the growth and use of metaverse's full potential in the future. From the findings we can see that more trust will be created in the system through AI. Collaborations will be easily made through AI technologies since even now things are quite abstract. There exists literature now on the importance of AI and its advances that will enhance blockchain technology more secure. This stands true as it will help strengthen the system trust and help in transactions. With the help of smart contracts, AI fraudulent activities and scams that are prevalent currently will also be eradicated. It is also observed that AI technology will significantly affect trust in the system creating higher level of system trust in transactions and for building the ecosystem.

4.7.2 Variations in Predominant Trust within the Metaverse:

To summarize, the trust types in this research was broken down to three parts: dominant, moderately dominant, and least dominant.

Most dominant trust

From the findings it is seen that institution based trust is the most dominant in the metaverse platforms. One of the main reasons for that is that the metaverse is still evolving, therefore, the reputation of brand that is already present in the real world is carried forward to the metaverse. Consumers rather interact with known brands or familiar brands than brands that are unknown. This trust also helps in collaborations, as again, when a business entering an unfamiliar platform that is new and evolving with a system that is still under progress, it is less risky for them to collaborate with brands they know and are familiar with. The overall risk factor reduces

a lot in this case. As we know human tendency is to be attracted to things that seem familiar compared to being in a complete unfamiliar environment. Therefore, institution trust being dominant in collaborations is inevitable. Institution trust also help creates fast and performance trust. When a consumer transacts with a familiar brand, there already exists some form of trust even before the transaction being made. This creates fast trust. When a transaction is successful, it further strengthens the fast trust and creates performance trust.

Moderately dominant trust

The second most dominant trust is the system based trust or the blockchain technology. Since the system itself is new to many, there seem to be a hesitation in using the system. Metaverse with blockchain is way too risky for many. This is one reason why system level trust isn't dominant as much as institution based trust. Cryptocurrency that uses the blockchain and is the medium of exchange in the metaverse also plays a role for system level trust being moderate. Many have a negative notion towards cryptocurrencies. Therefore, metaverse, blockchain and cryptocurrency all are risky factors to many. There is also another scenario that is exisiting. Those who know and understand the system and cryptocurrencies seem to make transactions not because of the system level trust but due to the brand reputation. Age is another factor. Most of the transactions made in the metaverse are Gen Z's and now the Alphas. These consumers are not bothered about the system but the brand reputation. It is safe to say, any creator trying to sell their product who is new, will take time to build that trust in the brand, but because of the system, gaining that trust will be faster and easy. System level trust when it comes to collaborations play a vital role in B2B environments. This is because with the blockchain technology the transperancy speaks for itself which renders the growth of mutual trust amongst collaborators. It has been seen that blockchain technology alone will not have much of an impact to create trust in the system unlike what was thought of few years ago. With the advancement of AI and machine learning, it will get better and safer. System level trust also creates fast and performance trust. Therefore, because all these above factors, system based trust falls in the moderate category.

Least dominant trusts

As previously thought, homophilic trust does play role but not in making transactions. This trust is vital for creating awareness and bringing people into the platforms, which is currently one of the most crucial aspects to consider when trying to grow a metaverse business. It is important to educate consumers about the system, the platform and try to get them transitioning into the metaverse. Many efforts are being made for the awareness. Communities like discord as discussed previously is helping in transitioning. Metaverse awareness forums and associations will help businesses understand the potential of the platforms. Consumers are getting influenced by the peers and community members up to the point of exploring the assets for sale, however, they are not a major factor for purchasing intentions.

When it comes to fast trust and performance trust, they indirectly affect purchasing decisions in the metaverse. Since both these trusts are a byproduct of system and institution trust, when a transaction occurs that is quick and smooth, the swiftness and the performance of the transaction creates fast and performance trust. This helps in future transactions as it is due to the role of these trusts, the consumer comes back to purchase at a later period.

The findings of the research are shown in the below figure.

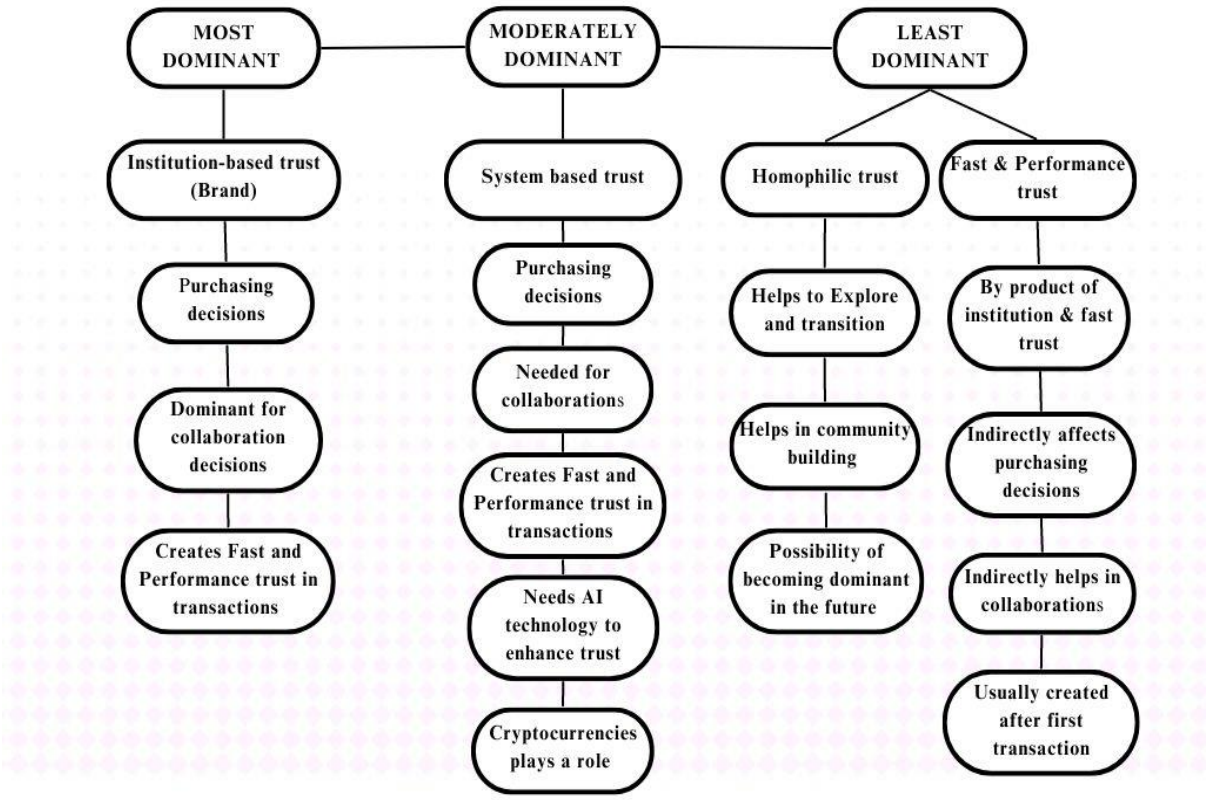

Figure 3 Findings of trust concepts prevailing in transactions made in the metaverse ecosystem.

5 CONCLUSION

It is evident that the metaverse is growing and going beyond gaming industries. Soon people will be shopping for anything to everything on the metaverse like they do now online. Therefore, questions on trust are inevitable. To have transaction in place, the need for trust arises and it is already being said that with web 3.0 technological advances like blockchain, it is going to be a trustless exchange in the web 3 metaverse platforms due to transparency and the elimination of middlemen, making it less risky to transact. The findings of this research show the importance of brand reputation for making a transaction to occur even with the latest technology, blockchain in the platform. This chapter explains the discussions, theoretical contribution, managerial implication and limitations and future research scope of the research.

5.1 Discussions

In this section, the main research question, and the other sub questions that this thesis revolves around are answered based on the findings. Beginning with first research question:

> *RQ1: To what extent do different types of trust (i.e., institution-based trust, system-based trust, fast trust, performance trust, and homophilic trust) play a dominant role in the transactions of digital assets in a web 3-based metaverse?*

The level of dominance is divided into most dominant, moderate, and least. From the findings, we can observe that institution based trust is the most dominant while making a transaction in web 3 based metaverse platform. It is gathered that since metaverse is in a transitional phase, the real world brand reputation and good will plays a vital role in making transaction decisions.

Users are most likely to transact with established and reputed brands outside of the virtual world rather than transacting with unknown entities and brands. The risk factor is quite high in the latter case. There also is the factor of credibility at play. A strong brand with a good reputation will enhance their credibility in the metaverse. Users will mostly likely trust those businesses when they are launching new digital assets in the metaverse platforms.

When it comes to the products offered for purchase in the digital asset world, users are again likely to buy from a known brand than an unknown one if the same product is being offered for purchase.

As mentioned by one of the respondents, currently companies with a good brand reputation are gaining popularity in the metaverse. At this stage of the metaverse awareness is crucial than making transactions. Therefore, brands which already has an established awareness in the real world are transitioning smoothly into the metaverse. The previous notion about institution based trust is applicable to the new metaverse platforms which says, it has been seen that when institutions are trusted, they increase the feelings of security and promote interpersonal trust among strangers (Guiliana et. al., 2020).

Previously it was seen that due to the uncertainty of online transactions, the digital economy encourages the creation of institutional structures that assures online interorganizational exchange relationships (Pavlov, 2002). The statements stand the same for now as well when it comes to trust even in the new blockchain technology and metaverse. Consumer behavior and perception towards the new technology and virtual platforms will take time to change, perhaps when the metaverse will be as common as the internet today. Till then, it is the real world trust in the brand that dominates in the virtual world of Web 3 metaverse even with the new "trustless" technological advancements available.

The new digital commerce is seen same as the e-commerce that exists in the Web 2.0 world today. In the Web 2 world, a buyer is influenced by a seller's information on the product or service when they make the decision to trust the seller (Lee et al., 2018). The observation stands true even when it comes to the web 3 based metaverse. It is still the seller and the brand reputation that dominates the decision making factor to make a purchase of a digital asset unlike the system trust that should have been dominant.

Trust in the blockchain system does have a considerable role to play in digital asset purchase decisions in the web 3 based metaverse even though it is not the trust that is dominant. It is a moderately dominant trust and comes after institution based trust. The fact that there are no middlemen, transperancy in transactions etc. does play a role but it has been found that it is mostly for B2B transactions and less for B2C transactions.

Consumers who do not understand the technology will not take the advantages into consideration. Consumers who know about the transperancy and the advantages appreciate the technology but the trust in the system does not affect their purchasing decisions as much. From this research it can be seen that as of now, only trust in the system (blockchain technology) is not enough. There have been instances where blockchain data was hacked but these are rare and blockchain still stands as a secure and a reliable way of storing data.

It is interesting to note that there seem to be more trust in blockchain technology with AI. With the advancements made within the blockchain technology, including AI will enhance and make the system and metaverse more secure that what it is now. AI can help detect fraudulent and scamming activities. Therefore, brand awareness along with system trust with the help of AI and deep learning techniques will help strengthen the trust needed to transact.

What we also find from this research is that yes, crypto currency used in the platform does play a role now since metaverse is in a transitional phase. The platform owners know that currently it is a challenge to get people to enter the platform more than making a transaction. Therefore, the use of crypto is not made mandatory in some platforms. They are also providing the use of debit/credit cards in some platforms. This is being done to earn the trust of the platform first and then may be increase the traffic to them.

As mentioned, the initial trust creation is very important more than a purchase. Since the world is on two minds about crypto, it is hard for metaverse to attract everyone as of now. Trust in crypto is to be built first to make metaverse platforms gain rapid success like the internet. Which is why till then, some platforms are offering traditional modes of payment. It was also observed that the institution based trust creates trust in the crypto in use.

Homophilic trust as previously thought does not currently play much of an impact when it comes to purchasing decisions at this stage of metaverse. It is mostly the homophilic trust that plays a role in attracting consumers to enter and explore the virtual reality world and build a community. In the future, this trust can be built through interactions within the community by sharing experiences, communication, and joint activities. As the metaverse grows, this trust is likely to grow by giving consumers the sense of belonging to the same community or group. This trust will also help make purchasing decisions in the future with the growth of metaverse.

It was interesting to note that with applications like discord, which is the largest community for the Web 3 based metaverse, homophilic trust is not dominant in purchasing decisions of NFT's and other digital assets. As respondent 7 has pointed out, the conversations and interactions between the various digital asset communities in discord makes them explore a platform or a digital asset but it does not impact them to make a purchase. The decision ultimately is relied on the brand offering the NFT or the digital asset.

Fast trust is created when the consumer is familiar with the brand, their reputation and the quality of the product or services. It has been found that even with the unfamiliarity of the new platform and the system, fast trust is created while purchasing a digital asset in the metaverse. One of the factors is that some are relating fast trust to institution based trust. Since the brand is known, it does not matter where they are operating, consumers tend to trust the system they are using hence creating fast trust in transactions. Another finding is that the elimination of the third party indeed plays a role in creating fast trust. Fast trust is linked to institution and system based trust. It certainly is the "by product" of these trusts.

Performance based trust just like fast trust is associated with institution and system trust. It has been seen that the previous performance in the real world makes an impact in performance trust in the virtual world. This is mostly because institution trust dominant in transactions in the virtual world. With the hype of NFT's dying down currently, what is the factor that drives someone to purchase a digital asset now? It is the worth which is linked to both institution and performance trust. System trust also helps in the building of performance trust since the transactions are fast and transparent. Both fast and performance trust were the least dominant along with homophilic trust.

RQ 2: What is the relationship between different types of trust and their ability to facilitate collaborations in the metaverse?

As seen in this research, current business world is in two minds about the metaverse. Some businesses are investing in the Web 3 metaverse thinking of the future and wants to already be a part of the hype while others due to the current economic conditions do not find it worth investing millions in Gen Z's and Alpha's as of now. Another factor is that the Web 3 based metaverse is quite expensive, especially real estates. Therefore, small businesses are not

encouraged to dive in the virtual world of the metaverse as yet. There are quite a lot of consultancy companies being set up acting like the "middlemen" for businesses to enter the metaverse. They guide, and help in product placements, build awareness.

Big companies are also seen going to such consultancy companies to help them venture into the world of metaverse. Mutual trust based on system, institution and performance trust helps here. Metaverse being a new and unknown platform, businesses are quite hesitant into going for a partnership with these consultancy companies. They prefer to "sponsor" for a start to taste the waters before taking the huge leap into the world of metaverse. They start with sponsoring events in the metaverse before renting or purchasing their own platforms. The consultancy companies on the other hand show with data and transperancy the return on investments it will be able to bring in for the businesses to encourage them to explore the new revenue stream.

Therefore, system based trust is making it easy to collaborate with other businesses due to the transperancy and easy transactions. Associations like Metaverse Standard Forum are being formed which focuses on the standard development to support the working of the open metaverse helping in collaborations and other business related issues. They are also encouraging the development of AI technology to better the system level trust in the metaverse. It has been found that the four traditional types of trust; institution, system, fast and performance based trusts are interrelated to each other and play role in creating collaborations in the metaverse.

5.2 Theoretical contributions of the study

Trust in business has been around ever since exchanges were being made. This thesis attempts to explore a few trust concepts existing with the new virtual world of the metaverse and did so by interviewing seven respondents. The research was conducted to understand the level of dominance of each type of trust when making purchasing decisions. The level of dominance is divided into high, moderate, and low. There is a need to understand not only the trusts that are at play in the transactions made in the metaverse but also which are the most dominant and why. With this research consumer behavior towards the digital assets transacted in the metaverse is made clear. What factor is it that helps drive revenues for businesses in the metaverse currently will help businesses understand their consumers better and hence work

towards consumer acquisition which in turn will drive more people to transition into the metaverse and trust the entire platform. When there is a demand, there will be efforts made to advance the metaverse towards its full potential. The trust types are of different dominance levels in the metaverse as seen in this research. Some of the reasons behind this is that firstly, the metaverse is a new platform still in the early stage of adoption. As these platforms continue to evolve, there will be many changes in how assets are transacted and people interact. The technology behind the operation of the metaverse, VR, AR and MR technologies are growing and evolving. In addition, many people are also unaware of the technicalities involved. Essentially, this is the first ever immersive, interoperable technology platform that will revolutionize the way the internet is seen today, with transactions that differ from those on traditional exchanges to an extent. Cryptocurrency, which is another new form of asset, is the main medium of exchange here. As a result, the metaverse is perceived as an unfamiliar, futuristic concept and technology by many, causing them to be intimidated or even overwhelmed by it. Therefore, not many are interested in transacting on these platforms. Which is why the purpose of these trusts, their presence, and the extent to which they influence a transaction are quite important to understand. The primary contribution of this research is to understand which trust is dominant and it has been found that unlike previously thought about system trust, the blockchain technology is not dominant when it comes to purchasing decisions. It is in fact the institution based trust that plays a major role in the decision making. It still is the brand reputation in the real world that plays an important role in the metaverse. This can be because of the reasons mentioned above. Brand reputation is still the major dominant trust. It is the familiarity of the brand in the unfamiliar platform and technology that drives consumers to trust them. Based on the opinions of the respondents and earlier trust concepts, it has also been identified that the traditional trust concepts are still existent in the new "trustless" blockchain technology enabled metaverse ecosystem and are dominant in various levels.

The findings further support the theory that institution based trust increases the feelings of security and promote interpersonal trust amongst strangers (Guiliana et. al., 2020).

The findings align with the theory of Donald (2013) who in his article shows the greater the level of institutional trust, the greater is the online shopping satisfaction. This can now also be extended to the new digital commerce era. Due to the uncertainty of online transactions and risks involved the digital economy, it is the institutional trust that helps create exchange relationships (Pavlov, 2002).

The findings also support Halinen (1994) theory who stated that the critical factors for a business relationship are trust, transperancy in communication, coordination etc. It can be seen through this research how brand reputation and awareness play an integral role in trust creation and building both in the real and virtual worlds.

Thein et.al. (2023) says that the transperancy of blockchain will help digital twins resistant to attacks making it secure to share data within different virtual worlds. In this research, it has been found that system based trust helps in this regard. He also mentions transactions of NFT's, purchasing land, in game products etc. are all transparent, easy to use with speedy processing of transactions. One of the research findings does state that system based trust creates fast and performance trust.

When coming to homophilic trust, there already exists in literature that homophilic trust can also manifest in different structural and behavioral effects like forming connections, trust relations etc. (Fazelpour & Steel, 2021). This research shows that homophilic trust is dominant in building communities in the metaverse by encouraging the community members to explore and transition into the metaverse ecosystem. However, it was also observed that with channels like Discord available for the Web 3 metaverse community building, it still is not effective enough as of now to impact purchasing decisions.

Finally, this research concludes that traditional trust aspects still play a vital role in purchase decision making even with the new technology and web 3 metaverse platforms and the brand reputation and name is the most dominant when it comes to making a purchase due to its early stage of adoption.

5.3 Managerial implications of the study

In this section, the managerial implications of the research are discussed.

The concept of trust is crucial in any transactional environment which includes Web 3 based metaverse. There are several managerial implications to keep in mind when it comes to trust in transactions in the open metaverse ecosystem or to encourage a transaction to occur.

Since institutional based trust and system trust both play a role in making a transaction, establishing a trust mechanism is essential. This can be done through creating smart contracts with the help of AI that will ensure safety, transperancy and accountability in all transactions. Businesses when entering the metaverse are encouraged to be as transparent as they can in their transactions and to gain trust from end users should also consider the possibility of adopting the latest AI based technology to further strengthen the trust of their customers.
Creating digital twins to encourage purchases at the beginning stages of business in the metaverse as the real world trust is carried forward to the virtual world of the metaverse is also important.

Furthermore, businesses should invest in business reputation management while operating in the metaverse. This means ensuring there always is a good reputation created about the brand both in real and the virtual world. As mentioned above, creating system trust through transparency and communication, responding to online feedback, reviews, comments, handling negative responses just like in the current online experiences will help in building institution based trust. This in turn will help in creating customer loyalty and higher customer acquisition which is currently much needed in the metaverse.

Homophilic trust is important for businesses who are looking to promote their products or services within specific communities in the metaverse. By analyzing the interests and values, businesses can create content and messages that resonates with members of the community and thus build trust. Furthermore, by engaging with the community in a genuine way, businesses can establish themselves as trusted members, which can help increase sales and build long-term trustworthy relationships with customers, ultimately creating customer loyalty.

Innovation and customer engagement is necessary for customer retention as the rich immersive experience is what makes metaverse different from its predecessors. This will also help the business to be unique and differentiate from the competitors. Therefore, businesses need to be innovative, creative, be mindful of potential risks and also take steps to mitigate those risks.
Collaborations are important in metaverse. Businesses should choose the right partners to collaborate with as institution based trust is dominant in purchasing decisions. Clear performance metrics are important in collaborations. Making sure the businesses are aware of their common goals, understandings of the business procedures and being aligned with each

other in all goals and decision making is necessary to enhance the system based trust which helps in mutual trust among collaborators.

All in all, the respondents of this study were very optimistic about the future of Web 3 metaverse with only some stating concerns. They are quite certain metaverses full potential is still untapped and will take time. Technology is still evolving when it comes to Web 3 which is needed for metaverse to operate in its full potential. They all also agree that AI technology will help enhance metaverse and the trust a consumer needs to transition into it.

5.4 Reliability and validity of the research

Reliability and validity are the quality of qualitative research in social sciences. Reliability of the research is the ability to replicate the research design and achieve the same results. Validity is the accuracy of the analyses, appropriateness of the methods that were used, and the generalizability of the findings (Saunders et al., 2015, p. 202). As this study was an exploratory, qualitative study in which the findings are based on the personal opinions and knowledge of respondents, and data was gathered through semi-structured, in depth interviews, complete replication may be difficult.

The validity of the study may be limited as many of the findings were based on respondents' personal opinions. The generalizability may be limited as well due to the small sample size of the research. However, the techniques used to gather the data, analyze it, and interpretation of the findings are based on existing scientific literature which supports the validity of this research.

5.5 Limitations and future research

In this section, we will reflect upon the limitations of the conducted research and delve into potential avenues for future investigation regarding the concept of trust in the Metaverse. Our research employed a qualitative approach, utilizing interviews as the primary method of data collection. The most significant limitation was the insufficient interaction with individuals actively participating in the Web 3 Metaverse. A broader and more diverse pool of participants could have offered a more comprehensive understanding of trust dynamics in the Metaverse.

The scope of the collected data was also constrained, with the sample consisting of seven respondents from diverse backgrounds. Further, the novelty and misunderstood nature of the Web 3 Metaverse presented challenges in procuring suitable respondents who were active on these platforms for a substantial period. A majority of the participants, although knowledgeable about the technology, were not necessarily engaged in transactions within the Web 3 Metaverse, hence limiting the breadth of the insights gained. There was also a degree of confusion about the specific type of Metaverse being investigated, given the multiplicity of definitions associated with the term.

In terms of content, our research was primarily focused on traditional concepts of trust within the context of digital asset transactions. Consequently, various aspects of trust were not included in this study, potentially overlooking key trust dynamics inherent in the Metaverse.

Looking ahead, future research could strive to augment trust theories to more effectively encompass the unique complexities of the Metaverse. The rapid evolution of the Metaverse provides fertile ground for discovering and studying new forms of trust, offering exciting opportunities for expanding our understanding of trust dynamics in this novel context. In line with the findings of this study, it would be valuable to examine whether institutional trust continues to hold a dominant role in purchasing decisions within the Metaverse as it develops further. Moreover, given the potential growth of homophilic trust and system trust within the Web 3 Metaverse, future research could place a spotlight on these specific trust concepts. Lastly, as the fields of AI and the Metaverse continue to intertwine, examining their codependency and its implications on trust could also offer fruitful insights, providing a rich direction for further exploration.

An area of research that could further enhance our understanding of trust in the Metaverse is the exploration of cross-cultural differences in trust formation and manifestation within this digital realm. As the Metaverse inherently transcends geographical borders, it brings together users from a diverse range of cultural backgrounds. Cultural factors can significantly influence trust-building behaviors and expectations, yet these potential differences remain largely unexplored in the existing literature on the Metaverse. Future studies could examine how users from different cultures perceive and establish trust within the Metaverse, and how these varied perspectives impact the overall social dynamics within this shared virtual space. Such a study

could shed light on the need for culturally inclusive trust mechanisms and norms within the Metaverse, thereby contributing significantly to its continued evolution and acceptance.

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7 APPENDICES

Appendix 1: Interview questions

General questions

1. Age
2. Are you active on metaverse? Which platform are you active in?
3. How long have you been active?
4. What are the transactions you have made so far?
5. Do you own any digital assets?
6. Would you like to own any if you don't yet?
7. Do you think the metaverse is reliable, if so, why?
8. Is there more trust in the metaverse?
9. How is trade different in metaverse than in other social media platforms?

Blockchain and trustless transactions

10. Do you think trust is necessary or is it already there thanks to blockchain?
11. With the help of blockchain in the metaverse is it easier to make exchanges of digital assets easier and faster?
12. So, do you think the new trustless transactions in the blockchain enabled metaverse increase the **system level trust** in transactions?
13. When making a transaction in a metaverse platform, what do you look out for? What are the main features you seek when making a purchase?
14. Is there a key role play of **performance-based trust** and **fast trust** in the metaverse transactions? Are they related? if so, how?
15. What about the **institution-based trust** in business, does it influence the B2C relationships in the metaverse?
16. Do you think the crypto currency used in purchasing has a direct relationship to the **institutional based trust**? Does it matter?

Homophilic trust

17. How far are you to trust someone when you see them with similar avatar as you on metaverse?
18. Do you think homophilic trust in the metaverse is one of the main ways of influencing people in the platform?
19. Since it is all about building communities, do you think homophilic trust is more dominant in the metaverse?
20. Which trust do you think is more dominant in a web 3 based metaverse when it comes to transactions of digital assets?

Other questions:

21. The fact there is no need for trust, how is this helping in transactions or are there some aspects we still need to be certain of?
22. How will it help in creating collaborations amongst businesses in a B2B environment? What are the companies looking at when it comes to collaborating?
23. What are the major concerns of the businesses when they come to collab with you in the metaverse?
24. How easy is the process, keeping in mind the trust perspective, for small companies that are thinking of entering the new digital era of Web3 metaverse and blockchain technology?
25. Are the businesses preparing for the new change as this will mean a total transperancy amongst the networks involved withing the organization and the end users.
26. Does age play a factor in trust perceptions in the metaverse since metaverse is aimed at Gen Z and Gen alpha?
27. Does the awareness of web3 features play a role in metaverse usage?
28. Tell me all about metaverse marketing, how is it different when it comes to operating in the platforms?
29. What are the businesses main concern before opting to enter the metaverse?
30. As a consumer, what do you think the buyers investigate while purchasing something in the metaverse?