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The Impact of the Metaverse on the South African Insurance Industry

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DECLARATION

I, Rashad Mia, declare that this research article is my own work except as indicated in the references and acknowledgements. It is submitted in partial fulfilment of the requirements for the degree of Master of Business Administration in the Graduate School of Business Administration, University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination in this or any other university.

RASHAD MIA

Signed at Sandton, Johannesburg

On the 28th day of February 2023

DEDICATION

This dissertation is dedicated to my wife and daughter.

To my wife for being my rock and my compass. For the words of motivation and courage when I felt I could not get through the more difficult times, for always believing in me and, most importantly, seeing my value and supporting me in "seeing" my worth. I am eternally grateful and blessed. I will love you forever.

To my beautiful daughter. Thank you for your understanding and your maturity as I navigated this journey. I will always be and do better for you. I love you, pup.

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Special thanks and heartfelt gratitude to the MBA Cohort 2021/2022 and the syndicate members I have worked with; I have learnt so much, grown with you, and have made some memories I will carry with me for a lifetime. Thank you for the time spent learning, unlearning, and relearning.

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I am also profoundly thankful to all the interviewed participants for their knowledge, wisdom, help and invaluable contribution to this paper.

To family and friends who have stood by me on this journey, you are invaluable. Last but far from least, to my Parents in law, Prem, and Mags Maharaj. I am deeply indebted to you both. Thank you both for your wise words, encouragement, and support and for loving and giving me the opportunity me to immerse myself in this experience fully. Your contributions towards this journey are priceless; it has changed my life and shaped me in ways I could not have imagined. I am truly blessed to have you in my life. Thank you!

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ABSTRACT

The internet is evolving, where virtual reality and artificial intelligence converge to create a more immersive online experience. This revolutionised digital space will allow users to interact and transact virtually with more users more efficiently. This will impact the way we live, work, and socialise. Despite multiple articles discussing the metaverse and its relational impact on the insurance industry, this research paper aims to understand the metaverse from different South African perspectives, and through virtual one on one interviews; participants were interviewed to unpack further potential risks and benefits of the metaverse on the South African consumer. This also led to perspectives on the potential insurance landscape within virtual worlds and the type of products and services that could stem from. The thematic analysis of the insurance landscape in the metaverse provided insights into emerging trends and opportunities in the space that covered themes such as virtual property insurance, cyber insurance, digital identity, reputational insurance, and personalised insurance products that could be developed to tailor individual needs. In terms of risks and benefits, the data and information highlighted themes that touched on addiction, privacy and security, social isolation as well as financial risks. On the other hand, the benefits mentioned were enhanced social experiences, access to new experiences as well as professional opportunities. The research of this paper intends to provide a localised viewpoint of insurance in South Africa and how such a highly regulated industry will pivot, if at all, towards the inevitability of the metaverse.

Keywords: *Metaverse; Insurance; Virtual Reality; Blockchain; Inside Out Model; Outside in Model; Regulation*

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CHAPTER 1: INTRODUCTION

1.1 THE BACKGROUND OF THE STUDY

Two decades ago, to sell a product or a service, businesses needed to open physical stores, put ads in local newspapers, or join community network organisations- all to see if local customers needed what they had to offer. However, with the advent of the internet, all of that changed. In today's world, businesses are not dependent on their local customer base for survival as they now have a global audience. (Francis, 2019).

The internet has evolved significantly since its creation in the 1960s and, over time, has developed from a limited network of connected computers to a vast, interconnected web of information and communication. Today with billions of users, the advancements in infrastructure and technology, connection speeds have increased significantly, making it possible to access the internet anywhere and anytime. This has thus transformed the way we consume content, interact with each other, and do business.

The internet has had a significant impact on the insurance industry, transforming the way insurance is bought and sold, as well as the way claims are processed and managed. (Rice-Boshi, 2023). It allowed consumers to research and purchase insurance policies online, making the process more convenient and accessible. With the amount of data sharing taking place, insurers have been able to collect and analyse data allowing for the development of more accurate risk models while at the same time improving pricing accuracy. (Javanmardian et al., 2021). From a customer service perspective, insurers can offer online chat support, social media customer service options, and other digital channels that customers can use to engage with the organisation.

As the evolution of the internet continues to unfold into a more immersive platform The metaverse is a virtual, three-dimensional space that enables users to connect in every aspect of their lives. It could connect multiple platforms, like the internet, which contains different websites accessible through a single browser. Metaverses will be persistent, online, and 3D universes that combine various virtual worlds; these 3D spaces will allow users to work, meet, interact, and socialise together in the

Metaverse. (Academy, 2022). Neal Stephenson coined the term 'Metaverse' in 1992 in his science fiction novel 'Snow Crash,' where people explore the online world using digital avatars to escape a dystopian reality.

Ernest Cline further explored the concept of the Metaverse in his 2011 book Ready Player One, which was made into a film by Steven Spielberg in 2018. The Metaverse blurs the line between reality and virtual life; it is a virtual world that can be entered, experienced, and participated in using virtual or augmented reality headsets. Social media, online gaming, and cryptocurrencies can all be incorporated into the platform to create an interactive experience. (Wherever, 2022.)

Along with altering how businesses interact with their clients, it has also altered how they interact with their staff, locate their rivals, and manage them. Business communication has evolved because of email and instant messaging. Organisations must now manage consumers and competitors worldwide because they are no longer limited to their local marketplaces. (Dawar et al., 2014)

Organisations must be able to understand what their customers want to satisfy them. Small businesses and organisations can now trade and participate locally and globally with controlled overhead and financial risks thanks to online surveys, questionnaires, feedback forms, and comments on their websites throughout the internet.

The United States Military was the internet's first user, and it was built from the ground up to endure both unexpected and anticipated stress levels. MIT researcher J.C.R. Licklider memos from august 1962 regarding his "Galactic Network" concept, which contains the earliest known description of social interactions made possible via networking. His goal was to build a worldwide computer network that would allow everyone to easily access information and software from any location. The internet was created in the same spirit as his original idea. (Leiner, 2010).

The evolution of Insurance has also dated back to the dawn of modern history, where the concept of risk was viewed almost exclusively in terms of the physical bodies of individuals, mitigated by family ties and personal relationships rather than possessions

and objects. The first documented instance of insurance dates to the Babylonian era, circa 2250 BC, when the Babylonians developed loan insurance for maritime trading. Modern Insurance can be traced to the 1666 Great Fire of London, where a man named Nicholas Barbon started a building insurance company because of the disaster. A few years later, he started the city's first fire insurance company. (Gilbert, 2019).

By the late 19th century, accident insurance became available, which worked very similarly to the disability insurance we have today. (Thompson, 2022). It is moving forward into the future and characterising how Insurance has evolved. The internet and digitization have revolutionised the insurance industry to a point where it has adopted an innovative business model like those increasingly seen in other sectors. The internet has enabled insurance companies across the globe to take advantage of digital opportunities. They have also invested heavily to produce radical changes that have begun to affect corporate culture, products, processes, data management, and overall customer relations. With the ongoing evolution in the industry, there has been the evolution of traditional insurers to Ensure tech start-ups that are using technology to innovate part or all the present value chain of traditional financial institutions (Ostagar, 2018).

The approach these start-ups take in the market is essentially attributed to how they interact with clients and how the features of these organisations are being provided digitally and, in most cases, without person-to-person interaction. Due to the evolution of technology, these organisations are placing great emphasis on the experience while delivering what is, by design, a standardised product offering from a highly regulated industry where the colour of the policy wording only defines product innovation (Christensen, 2022).
Technological innovations have revolutionised this entire business model to an extent where it now plays a critical role in the delivery of the service and activities of an organisation.

1.2 THE PROBLEM STATEMENT

In an ever-evolving digital age where consumers are becoming more concerned with 'feeling' rather than 'function,' the industry's challenge is whether the metaverse provides answers to the insurance consumer of the future and then how will an age-old industry like insurance adapt to business and opportunities in the metaverse? The problem statement specific to insurance in the metaverse must cover three components.

1. **Economy**: The economy of the metaverse is built around the exchange of virtual currencies and digital assets. Will insurance companies be able to provide coverage for assets in the metaverse and explore new investment opportunities?
2. **Governance**: With metaverse laws and regulations still being developed, will insurance companies be able to identify what they are and are not able to do?
3. **Experience**: The metaverse allows personalised 3D experiences tailored for each user; how will insurance companies communicate to these users and, through immersive experiences, increase awareness of insurance-related needs? (Kilzi, 2022).

In the years ahead, the metaverse will be part of a growing conversation surrounding how insurers can evolve to be more appealing to new types of consumers. Simply put- insurers will need to keep up with people and businesses flocking to the metaverse. Insurance organisations need to be faster to adapt to cutting-edge technologies. (Marom, 2022).

However, this only reinforces the need for today's burgeoning Insuretecs sector to tap into the growing technological trends to create engaging, user-friendly products that can add lasting value and, in turn, revolutionise an archaic industry—evolving an industry into one that holds great promise for future generations through developing virtual foundations for a new way of doing business.

1.3 RESEARCH MOTIVATION

The South African insurance landscape will continue to change as technology advances and customer expectations shift. As a result of the ongoing digital transformation in the industry, to leverage the full potential of combined technology, which is characteristic of the fourth industrial revolution-, insurers will have to shift from simple digitization- characteristics of the third industrial revolution. (Moodley, n.d).

There is a need for insurance companies to rethink how they do business. Digitalization offers a multitude of benefits for business, including not just the ability to sell directly to clients via digital channels, but also the opportunity to prepare for and adapt to what business opportunities lie in the metaverse both now and in the future.

In today's world, artificial intelligence (AI), machine learning, robotics, the internet of things (IoT), and behavioural analytics play a significant role. In response to these technologies, insurers have created a new generation of digital products and lifestyle applications for consumers. Artificial intelligence and analytics are being incorporated into many applications by insurers, with a notable example being the ability to process some claims without paper or human interaction within minutes. (Rey, 2019)

However, even with this constant evolution of business and processes, is the insurance industry actively preparing for a brave new world where cryptocurrencies will have the power to prove and verify ownership statuses of digital and virtual goods and, in doing so, play an essential part in the role of achieving this. Is the industry looking into blockchain technologies which will be an essential component of the metaverse? Furthermore, due to the metaverse being able to create interactive spaces that will be able to combine real-life social interactions with extended reality, apart from the benefits this can deliver, what types of risks will then stem from this new way of social interaction? Atske, S. (Atske, 2022)

1.4 RESEARCH QUESTIONS

In this thesis, I will intend to answer the following core questions:

1. What benefits and risks does the metaverse pose to Insurers and Insurance consumers?
2. What could the Insurance landscape look like in the metaverse?

1.5 OBJECTIVE AND AIM OF THE RESEARCH

This research aims first to understand the metaverse and what it could look like. Then, it will look to understand if South African insurers and insurance leaders have started preparing for metaverse worlds. Have we started developing infrastructures around the next level of digitization? Next, the research will unpack the metaverse as a platform enabling and revolutionising everything from social media to e-commerce, retail, and real estate. Aligned with that, it would also elaborate on ownership of the metaverse and, based on this, how businesses will capitalise. Through these findings, the research will look at how businesses will need to communicate, collaborate, and operate within virtual spaces driven by virtual economies and how all of these will be able to contribute to a more inclusive service and product offering for an ever-evolving customer. A customer that now lives vicariously through avatars in a virtual world.

This paper will look at unpacking and analysing the risks and opportunities of the internet's future in the form of web 3.0 and the metaverse in the insurance industry. In addition, it will look at the pros and cons of having a fully immersive and interactive experience that the metaverse is developing to be.

It will examine the advantages of connecting to virtual worlds without negating physical distance, unlocking new and innovative business opportunities through the positive impact of cryptocurrencies and NFTs.

This will then be overlayed by the concept of what insurance might look like in the future. How will the insurance industry respond to the unique risks that will arise from commerce in the metaverse?

Through Qualitative research methods, an understanding of underlying reasons and motivations will be uncovered to gain insights into prevalent trends in opinion of just how much thought leadership is being placed on the subject and how leaders of today not only view but anticipate the metaverse and insurance colliding. Using individual in-depth virtual interviews, the outcomes of these will confirm if current leadership firstly understands what the metaverse is and is then able to stand up and pivot to what is heading our way. Do they view the metaverse as Dystopia or Utopia and as a polarizing technology, (Naughton, 2022) will it be the demise of human civilization and the evolution of a virtual dystopia devoid of any actual reality. Do these leaders view the metaverse as a centralized or decentralized space and what could both sides of that coin offer from a benefit and risk perspective.

Is it the next big thing or just big tech's marketing gimmick to sustain the highly successful business models of monetizing users' behavioural data in exchange for 'free' services?

Key Terminology	
VR	Virtual Reality
AR	Augmented Reality
MR	Mixed Reality
NFT	Non Fungible Token
DAO	Decentralised Autonomous Organisation
AI	Artificial Intelligence
IoT	Internet of Things
Dapp	Decentralised Application
API	Application Programming Interface

1.6 LIMITATIONS OF THE STUDY

According to a Gartner survey, more than a third of consumers have not heard of the metaverse. Of those that have heard about it, 58% don’t know what it means or don’t think they understand it at all and can’t explain it. Only 6% of the polled individuals in this survey claimed to be comfortable in understanding the metaverse and were able to explain it to others. (Stamford et al, 2022), Creating context and an understanding of the topic first will be essential in getting the most out of the research especially when the Interviews start building on specific themes.

CHAPTER 2: LITERATURE REVIEW

2.1 INTRODUCTION

This chapter will review the concepts of the metaverse and unpack the various definitions and views of numerous authors. The overall perception and definition of the metaverse will be discussed under web 3.0. Considering that this research paper will focus not only on the metaverse as a platform but also on the insurance industry.

The road to Insurance in the metaverse will look at journals, articles, and reviews around the evolution of Insurance from archaic activities to digitalization and into active involvement within web 3.0 and the metaverse. Finally, the literature will give an overview of where South Africa stands in terms of metaverse understanding, preparedness, and predictability.

2.2 THEORETICAL BACKGROUND

2.2.1 THE CONCEPT OF THE INTERNET

The Internet is a global network of computing resources. The Internet can be thought of as a physical collection of routers and circuit assets or resources shared. (Anwar, 2020). As a system architecture, the Internet has revolutionised communication and commerce by allowing various networks worldwide to communicate. The Internet, sometimes called a 'network of networks,' emerged in the United States in the 1970s but became widely known in the early 1990s. About 4.5 billion people, or more than half of the population, have access to the Internet globally. It was due to efforts to connect research networks in the United States and Europe that the Internet was born. The term internetting was formed through a program facilitated by the Défense Advanced Research Projects Agency or DARPA that explored using heterogeneous networks to interconnect them. (Featherly, 2023).

As a result of this concept, networks with standard interfaces will be linked through "gateways" based on the newly introduced concept of open-architecture networking. (Khan, 2022). In 1983, researchers began assembling the 'network or networks' known as the modern Internet. IN 1990, computer scientist Tim Berners-Lee developed the

world wide web, one of the most recognizable forms of online communication. Although it is often mistaken for the Internet, the web is just one of the most common ways to access data online through websites and hyperlinks. (Andrews, 2019).

2.2.2 WEB 2.0

The first websites were part of what is known as the "read-only web," or Web 1.0. they provided much information and were available to users worldwide, but they needed more functionality, flexibility, and user-generated content. The name "Web 2.0" implied an update to the then version of the world wide web.

The better way to describe it is that it represents a change in perspective and focus regarding web design. From static HTML pages, where users had little or no interaction, Web 2.0 included features such as user-generated content, transparent data, integrations, and software as a service through API implementation technology and the web as a platform instead of just a network. With the web being focused on as a platform, it offered more collaboration opportunities, more functionality, and more applications. It is the world wide web as we know it today. (Staff, 2022).

2.2.3 WEB 3.0

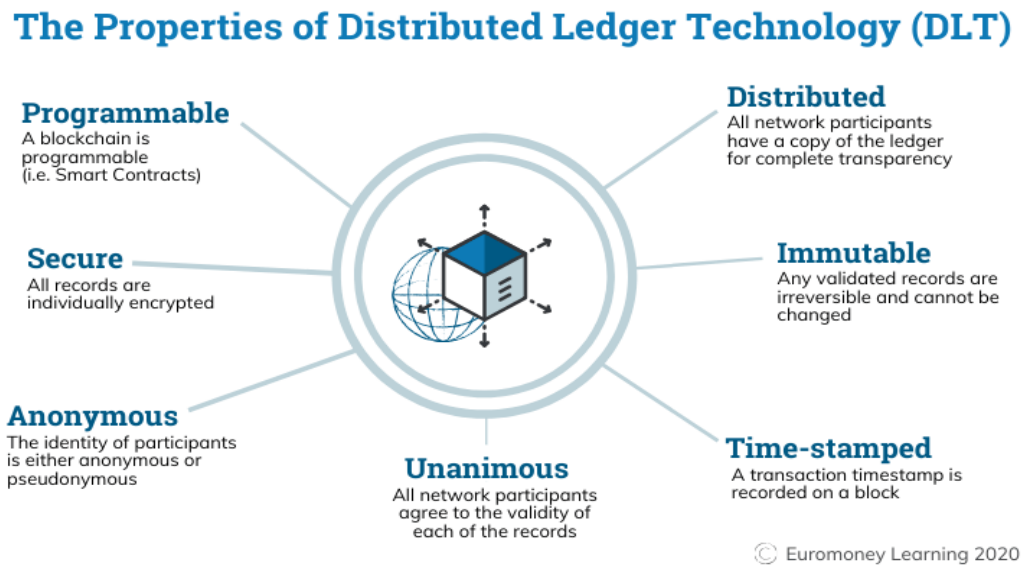
The third generation of web technologies is called Web 3.0 (Web3). The world wide web provides website and application services as a foundational layer for how the Internet is used. The definition of Web 3.0 is still in its infancy, and as such, it is not canonical or universal. It is clear, however, that Web 3.0 will feature robust decentralised applications and extensive use of blockchain technology. Additionally, Web 3.0 will leverage machine learning and artificial intelligence to help empower more intelligent and adaptive applications.

The intention behind using artificial intelligence is to provide users with faster, more relevant data. AI-powered websites should be able to filter through and provide information that is relevant to a specific user. A semantic web will categorise and store information in such a way that it can teach a computer what a particular piece of data means. In other words, a website should be able to read the words in search queries like a human would, allowing it to generate and share better content. Using AI

technology, the computer will learn what the data means and use it more accurately and concisely. (Kerner, 2022).

2.2.4 BLOCKCHAIN TECHNOLOGY

Blockchain is a way to record information, making it almost impossible to change, hack, or cheat the system. A blockchain is a digital ledger of transactions replicated and distributed across the entire network of computers on the blockchain. Each block in the chain contains information about a transaction. Every time a new transaction takes place on the blockchain, it is recorded in the ledger of every participant. Distributed ledger technology, or DLT, enables multiple participants to update a decentralised database. (Learning,
2022).



2.2.5 The Metaverse

The Metaverse has been depicted as a virtual world or a collection of virtual worlds that exist in a shared space and can be accessed by users via the internet. It is often imagined as a place where people can interact with each other and digital objects in a fully immersive and interactive environment, like the physical world.

It has been associated with virtual reality, but it can also include other forms of digital experiences, such as augmented reality and mixed reality.
Despite current conceptions of the Metaverse, the two elements of virtual reality interfaces, digital ownership, and avatars, feature prominently; however, none of these are essential to the concept. In a nutshell, the Metaverse is a graphically advanced virtual world designed to provide users with the ability to play, work, socialise, and shop, in other words, do the things humans enjoy in real life together.

The idea of ‘presence’ is often cited as a critical attribute of the Metaverse: feeling as though you are genuinely there and as if everyone else is there with you. The success of the Metaverse depends on its scalability, yet the obstacles seem daunting. Challenges such as transferring an object between graphics engines and rendering it accurately on a complex range of hardware combinations are two significant technical hurdles. Commercial and legal challenges must also be overcome: many organisations were misled into not protecting their intellectual property rights. (Welsh, 2022).

2.2.6 THE CONCEPT AND HISTORY OF INSURANCE

The concept of Insurance is as old as history itself. Babylonian merchants were familiar with bottomry contracts as early as 3000 BCE. The ancient Greeks had a good understanding of bottomry as early as the 4th century BCE when the Hindus practised it in 600 BCE. Under this contract, merchants received loans with the provision that the loan was not repaid if the shipment was lost at sea. In turn, the interest on the loans covered the insurance risk. (Augustyn, 2022). Genoa was the first city in Europe to offer standalone insurance policies unrelated to contracts or loans.

It was here that the first written insurance policy was created in 1347. By the turn of the century, maritime Insurance had become independent. These types of Insurance had varying premiums due to the risks involved. However, the separation of Insurance from contracts and loans was an important change that would have lasting effects on Insurance. In 1666, the great fire in London led to the invention of modern Insurance. In the aftermath of the fire that destroyed more than 30000 homes, Nicholas Barbon started an insurance company.

He would later introduce the city's first fire insurance company. During the late 19th century, accident insurance was introduced, and it was closely related to disability insurance as we know it today. (Thompson, 2022).

2.2.7 THE DIGITAL EVOLUTION OF INSURANCE BUSINESS MODELS

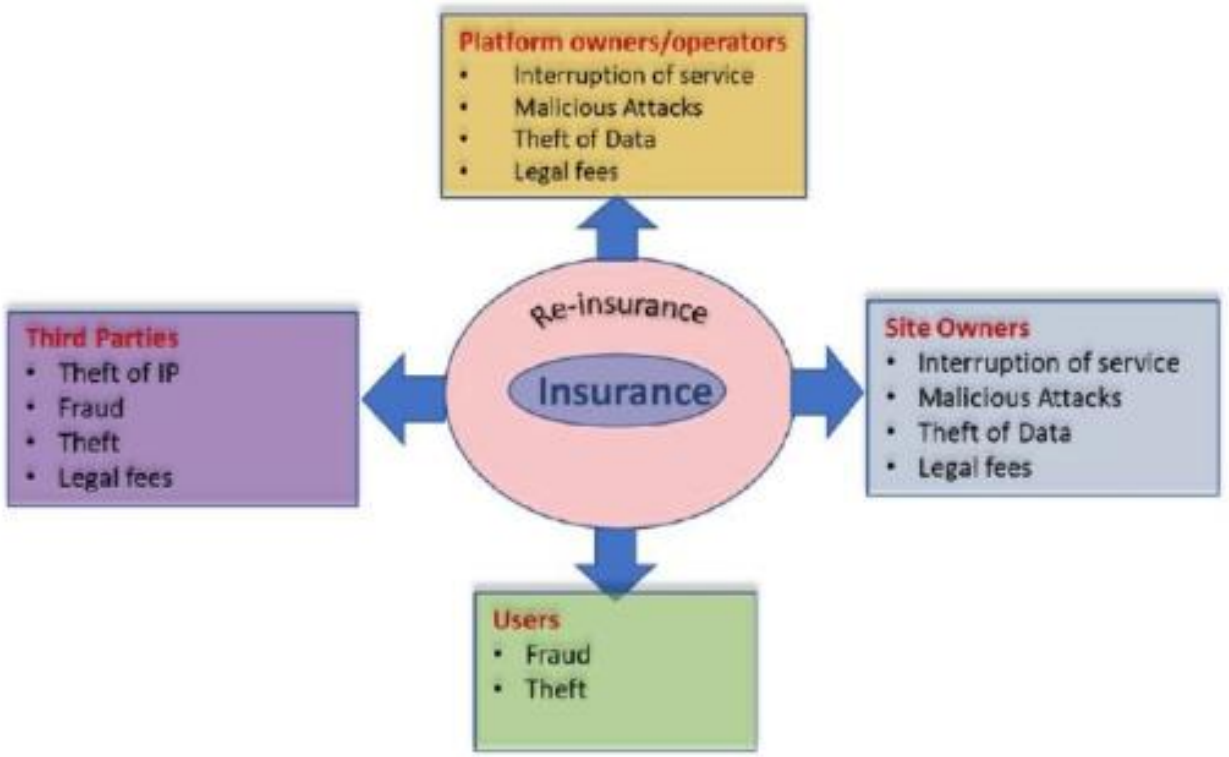
Due to digitalization, the insurance industry is expected to undergo substantial changes, including product development, pricing and underwriting, sales and distribution, policy and claims management, and asset and risk management (Elling et al, 2018).
In addition, insurance market players face a brand-new scenario 4.0 in which they can join a new ecosystem created by the merger of traditionally separate industries and new competition.

With the rise of start-ups that use technology to innovate one or more steps of the value chain of traditional financial institutions, the Insuretecs industry is experiencing the same dynamic as the entire financial services industry (Swiss Re, 2017). Insurers recognize new start-ups not as disruptive but as potential partners, just as traditional banks did when FinTech companies entered the market, where the two collaborated to provide the best possible customer experience to their clients, both in the relationship stage performed by the incumbents and in the management of the "customer-centric" approach performed by the innovators. (Cappiello, 2019).

2.2.8 INSURANCE AND THE METAVERSE

A feasible example of insurance in the metaverse could be closely modelled to that in the form of a digital Gucci handbag. Gucci and the individual purchasing the whole bag, or a piece of the bag as digital property would require obtaining insurance. An insurance market like this would be a lot like how individuals are required to purchase generic insurance to cover unforeseen losses. The possibility of a usage-based insurance model has already been growing in popularity in the offline world even before the pandemic, and now that the metaverse will bring the possibility of a single piece of digital property being used or traversed by multiple avatars at once or at different times, becomes the ideal option for ensuring in the new digital environment. (Ho, 2022).

POTENTIAL USES OF INSURANCE IN THE METAVERSE

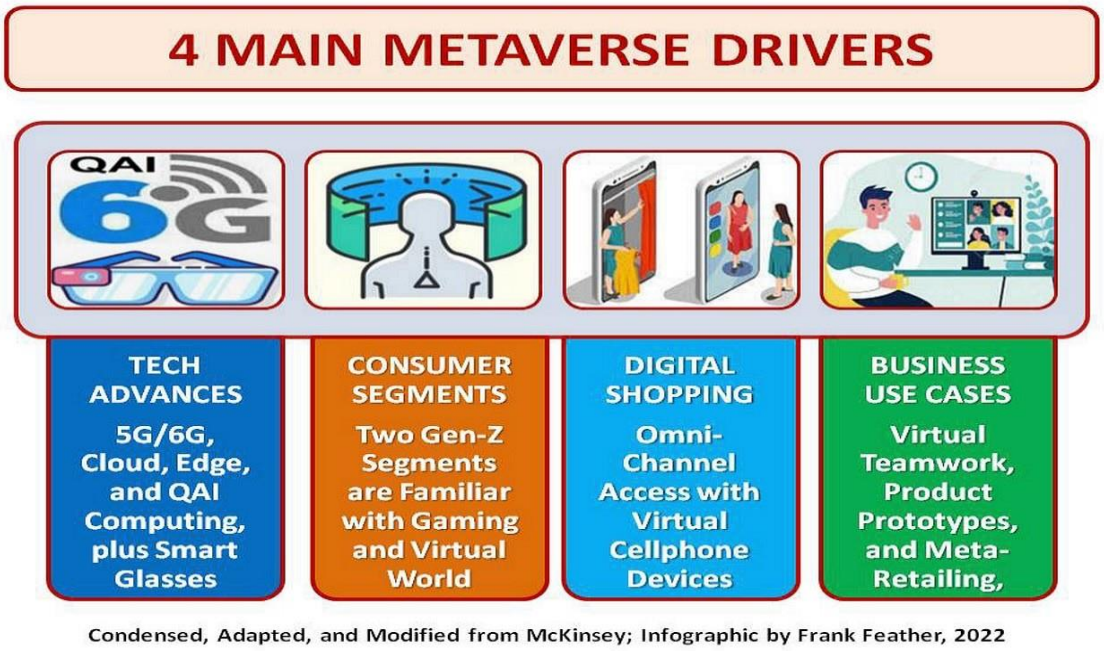


Mills, S. (n.d.). *The Metaverse and Insurance Pixel Perfect.* https://www.researchgate.net. Retrieved from https://www.researchgate.net/publication/358047734_The_Metaverse_Insurance_Pixel_Perfect_T.

2.3 CONCEPTUAL DEVELOPMENT

To understand and have a clearer idea of the conceptual development would have on business, specifically the insurance industry in the metaverse. Firstly, would be to gain an understanding of the metaverse and its features. This would entail understanding the diverse types of activities and digital assets within the metaverse. Once this understanding has been achieved, they can develop products and services tailored to the metaverse, such as virtual goods and activities policies. Additionally, they must look at developing new methods of assessing risk while addressing challenges posed by the metaverse. Finally, new regulatory frameworks will need to be developed and enhanced to ensure that insurers can provide adequate consumer protection.

DRIVERS OF THE METAVERSE



Condensed, Adapted, and Modified from McKinsey; Infographic by Frank Feather, 2022

2.4 PROPOSITION DEVELOPMENT

2.4.1 INTRODUCTION

This chapter presents the analysis and study results. The study objectives were presented on what benefits and risks the metaverse pose to insurers and insurance consumers and, with that in mind, what would the insurance landscape look like in the metaverse. Within the context of the paper's thematic analysis format, additional themes and sub-themes were included. This allowed more data interpretation flexibility and ensured that exciting and essential patterns were identified.

These themes would then address and contribute to the research questions directly in terms of relevance while characterising perceptions and or experiences of the participants interviewed. The themes and sub themes developed from the study should highlight and add weight to forecasted assumptions around how would the metaverse operate within the confines of the insurance industry and in doing so note any benefits and risks posed by the metaverse to both consumer and the insurer.

The study incorporated 17 interviews done virtually via the Microsoft teams' platform. All 17 participants opted to be interviewed, and none refused to or opted out before or mid interview.

The idea to stop at 17 participants was based on the saturation principle. As defined and formulated by (Marshall et al, 2013) and (Guest et al 2006). The concept of saturation can be seen in different ways:

- The point in time when the collection of new qualitative data no longer changes or changes little, your coding manual.
- The point at which each recent qualitative interview produces only previously discovered data.
- The point at which the performance of your research declines, i.e., each new interview makes a more minor contribution than the previous one.

To aid in precisely defining essential ideas and variables that are crucial to the study of insurance in the metaverse, certain propositions have been established. These will

assist in organising certain concepts regarding the link between various variables. Definitions of the metaverse will be emphasised, and they will be described in terms of how they affect aspects of insurance, culture, and society. It will offer a framework for organising the data and the conclusions, and by doing so, it will be possible to forecast how these variables will interact in the future.
There will also be generalised findings to other settings and populations and develop a clear understanding of the research questions and the scope of the study.

2.4.2 PROPOSITION DEVELOPMENT STATEMENT

The statement argues that insurance companies could reap rewards from the benefits and would need to mitigate the probable risks posed as well. Subjective views were put forward to underline the possible risks and benefits and in doing so information was shared to try and envisage the possible layout and landscape of the metaverse, specific to the insurance industry.

2.4.2.1 PROPOSITION 1

The emergence of the metaverse poses both significant risks and benefits for both insurers and consumers, requiring them to navigate the complex regulatory, legal, and ethical challenges of a rapidly evolving digital landscape.

2.4.2.2 PROPOSITION 2

The insurance landscape in the metaverse will require new frameworks, regulations, and products that address the unique risks and challenges of virtual environments, and insurers will need to adapt their underwriting practices and risk management strategies to thrive in this new digital frontier.

CHAPTER 3: RESEARCH METHODOLOGY

3.1 INTRODUCTION

This chapter will discuss the research methods to answer the study's questions. The aim and objective of the study are defined, as well as the critical characteristics of the research design and the research variables.

3.2 RESEARCH METHODOLOGY OF CHOICE

The study incorporated two specific paradigms. Firstly, that of ‘Constructivism” this paradigm focused on the understanding, subjective interpretations and meaning that the interviewed participants ascribed to their experience of the metaverse. (Dagar et al, 2016)

The second paradigm was that of ‘Pragmatism’, this emphasised the practical implications and applications of the research. It highlighted the uses, risks, and benefits of the metaverse, such as its impact on social interactions, entertainment, education, and business. (Kaushik, 2019)

The research questions being “What benefits and risks does the metaverse pose to insurers and insurance consumers?” and “What would the insurance landscape look like in the metaverse?” will benefit from an approach aligned with constructivism and pragmatism due to the inherent complexity and contextual nature of the topic.

The metaverse is a complex ideology that represents a virtual environment that combines physical and digital realities. It encompasses various technologies, platforms, and interactions. Its evolving nature and potential impacts on insurers and insurance consumers involve multifaceted aspects. Constructivism will emphasise the social construction of knowledge around the metaverse which will allow for a comprehensive exploration of the diverse perspectives and interpretations surrounding the metaverse. On the other end of the scale and through practical implications, pragmatism will focus on the practical consequences of ideas and actions. When looking at the benefits and risks associated with the metaverse for insurers and insurance consumers, the pragmatic approach will allow for a thorough analysis of

real-world implications. It will take into consideration the practical challenges, opportunities, and strategies relevant to the insurance industry while helping to identify actionable insights and recommendations.

Constructivism and pragmatism will acknowledge the significance of contextual factors that would shape knowledge and action. The insurance landscape in the metaverse does not exist in isolation and is influenced by broader socio-cultural, technological, and regulatory contexts. By adopting these two paradigms' it would be easier to consider the factors that mediate the insurance landscape, such as legal frameworks, market dynamics, technological advancements, and user behaviour within the metaverse.

"Virtual worlds as constructive learning environments: An analysis of Second Life" explored the educational potential of virtual worlds, specifically Second Life, from a constructive perspective. It highlighted how constructivism can influence the design and implementation of virtual environments and emphasises the social constructs within these spaces. These findings provided insights into the construction and understanding of virtual environments like the metaverse. (Chen and Bryer 2012)

An example of the use of successful pragmatism can be seen in the article that explores the philosophical underpinnings of virtual reality (VR) from a pragmatist perspective.it argues that pragmatism provides a framework for understanding the nature of VR and its potential practical implications. The significance and understanding of the VR context has the potential to inform the pragmatic approach when examining the landscape in the metaverse. (Johnson 2016).

These two specific paradigms will support an iterative and flexible research process which will align well with the evolving nature of the metaverse and the insurance industry. As the metaverse continues to develop, these two approaches will provide flexibility in incorporating new information which could potentially adjust the research approach accordingly.

Having used one on one interviews as instruments to collect data. The questions attempted to prove the relationship between the overall understanding of the metaverse and how this understanding correlated to perceptions and ideas around the impact of the metaverse on the consumer and insurer and in with that also develop a clear picture of what the business landscape could look like for insurers.

A common purpose was developed through multiple interrelated questions to gain specific insights into the research questions posed. These questions were used to stimulate and discover multiple perceptions and ideas. Observing and interpreting were used through a data collection process of virtual meeting transcripts in an unstructured and free-form format. The views and results are entirely subjective to the participant's experience and or knowledge of the subject matter. The research examined attitudes and behaviours towards the metaverse while generating verbal information to understand opinions and motivations.
Open-ended questions were used to unpack a subjective yet more profound understanding of the subject matter from all participants. Through this, the participants disclosed more details and insights while delivering personal sentiments and opinions. As a result, the ideas, feelings, emotions, and opinions on the subject were also easily understood.

3.3 POPULATION AND SAMPLING METHOD

The study participants consisted of mid and senior leaders in both tactical and strategic positions across various short- and long-term insurance companies in South Africa. Some also represented organisations, not in the insurance sector but had increased knowledge and awareness of the IT sector. Others were purely operational. Using internal channels, corporate websites, personal networks, and social networking sites such as LinkedIn, the complete database of participants was consolidated for testing. One-one engagements took place based on the availability of the participant. To ensure consistency, all participants were given a questionnaire as well as participation and consent forms which were signed before any interviewing took place.

3.4 DATA VARIABLES COLLECTED

There are multiple themes considered in this study, including the understanding of the metaverse, the possible risks and benefits of the metaverse to insurers and insurance consumers, and then also what would the metaverse landscape look like for the insurance sector?

Questions looked at unpacking subjective views on what the understanding looks like around the metaverse and, in doing so, leading into the proposed risks and benefits that could emulate from such an environment., to create context and stimulate answers to a few underlying and interrelated questions were posed to the participants to ensure that the overarching questions were answered.

Once the interviews were completed, Thematic analysis was used to bucket specific themes from the discussions. These themes illustrated patterns in the data, which were underpinned by central concepts and ideologies. The research in this form generated knowledge and understanding grounded by the participant's experience. Apart from theming the data, there were also aspects of decontextualizing and recontextualising the data to effectively evaluate and analyse the information shared.

3.5 SAMPLING METHOD AND SIZE

The sample consisted of 17 individuals working in the insurance industry as well as those in various other industries. This sample was used to generate insights that generated, in some cases, different views on the topic. The participants interviewed had a clear understanding of business and the Insurance landscape and understood digitization strategies and how these could potentially evolve into the metaverse, and factors were considered in choosing an appropriate sample technique and size:

3.6 DATA COLLECTION PROCESS

Participants engaged in individual virtual teams' interviews. The participants answered a set of questions and some additional sub-category questions.

The unique virtual interview method chosen to collect the primary served the following reasons:

- It established a level of rapport, allowing participants to feel more comfortable, which generated more insightful responses around the metaverse
- It allowed for a more significant opportunity to ask the sub or follow-up questions which probed for additional information and was then able to circle back on key questions later in the interview, which generated a richer understanding of the participant's perceptions, understandings, and experiences of the metaverse concerning the impact on the Insurance Industry and business in general.
- Tone and word choice changes allowed for a deeper understanding of the content and insights.
- These individual interviews also allowed for the identification of valuable findings quickly, which were then directed to specific questions on the questionnaire.

3.7 ETHICAL CONSIDERATIONS

Several ethical considerations were considered when this study was conducted. Participants' consent was the first and most important aspect considered. A consent form attached to the research questionnaire explained to the participants how the study would be conducted without compromising their safety in any way. The participants were free to decide whether to participate in the research, making it voluntary.

Throughout the study, participants were given the option of withdrawing from the study at any time. Due to the nature of the information and the level of participants, confidentiality and anonymity were assured to all participants. The participants were informed that they were not required to identify themselves on the research questionnaires and that their data would not be shared or given to any third party. The participants were all aware that all the data collected was solely for research purposes.

CHAPTER 4: DATA ANALYSIS, RESULTS AND DISCUSSIONS

.1 INTRODUCTION

This chapter presents the analysis and study results. The study objectives were presented on what benefits and risks the Metaverse poses to insurers and insurance consumers and, with that in mind, what would the insurance landscape look like in the Metaverse.

The paper's thematic research analysis format included additional themes and sub-themes. This allowed more data interpretation flexibility and ensured that exciting and essential patterns were identified. The thematic research helped to identify issues, experiences and concepts that were most salient to the individuals interviewed.
This analysis method also assisted in identifying commonalities and differences in experiences or perspectives of the different individuals. This highlighted the diversity in the population.

Relationships between different themes were also identified and this helped develop new theories and models that explain how the different factors or concepts are related.

And finally, it also provided insights and implications for practice, policy or for further research. It could then help to inform interventions or strategies that are grounded in the experiences and perspectives of the individuals.

The themes addressed and contributed to the research questions in some cases directly while in some cases indirectly in terms of relevance while characterising perceptions and or experiences of the participants interviewed.

The study incorporated 17 interviews done virtually via the Microsoft teams' platform. All 17 participants opted to be interviewed and none of them refused to or opted out before or mid interview.

The idea to stop at 17 participants was based on the saturation principle. As defined and formulated by (Marshall et al, 2013) and (Guest et al, 2006). The concept of saturation can be seen in different ways:

- The point in time when the collection of new qualitative data no longer changes or changes little, your coding manual.
- The point at which each recent qualitative interview produces only previously discovered data.
- The point at which the performance of your research declines, i.e., each new interview makes a smaller contribution than the previous one.

The one-on-one virtual interviews allowed a deeper understanding of the participants' experiences and perspectives. Questions were open-ended, and this type of questioning was useful when discussing the Metaverse due to its complex and subjective nature that incorporates multiple dimensions of technology, culture, and society.

A rich and nuanced understanding of how the participants understood and, in some cases, engaged with the Metaverse was provided. These included their motivations, desires, and challenges.

Valuable insights were provided by the various business and industry leaders who currently operate across various leadership levels.

4.1.1 TABLE OF PARTICIPANTS

Participant	Sector	Sex	Age Range	Recent Title Held
LB	Insurance	Male	35-45	Data Scientist
GS	Insurance	Male	30-40	Control Room Team Manager
MF	Insurannce	Male	30-40	Knoledge Analyst
AK	Insurance	Male	35-45	Chief Product Owner
SU	Insurance	Male	35-45	Head- Motor Claims
NC	Insurance	Male	35-45	Head- Salvage Management
RP	Banking	Male	50-60	Chief Operating Officer
RR	Insurance	Male	40-50	Head- Non Motor Claims
BS	Telecoms	Male	40-50	Finance Director
VS	FMCG	Female	35-45	IT Director
DM	Credit Reporting	Female	30-40	Product Analyst
AS	Insurance	Male	35-45	Chief Information Officer
MR	Credit Reporting	Male	30-40	Analyst
MB	Banking	Male	30-40	Head- Data Services
FG	Insurance	Male	45-55	Head- Analytics
MS	Banking	Male	40-50	Lead- Analytics
CC	Insurance	Male	40-50	Digital Product Owner

4.2 WHAT IS THE METAVERSE?

Perceived as a virtual parallel world that will be an extension of the physical world where people will be able to interact with each other through a digitally simulated platform that resembles the real world. (Tucci, 2022).

The metaverse and virtual reality

According to Chief Information Office A.S *"The metaverse is another form of consumer engagement which holds lots of value" while Analyst M.R noted that "it's like a digital world where you are able to own assets".*

Virtual reality is one of the key technologies that will enable the metaverse to become a reality. By immersing users in a fully realised virtual environment, virtual reality will allow users to interact with the metaverse in a more natural and intuitive way and as

the technology continues to advance, it will become increasingly difficult to distinguish between the physical world and the metaverse itself. (Council, 2023).

From and insurance perspective VR technology could provide insurers with immersive experiences and simulations that could allow for more accurate risk assessments. Using VR technology, virtual scenarios and representations could allow for more precise data allowing insurers to make more informed decisions.

Across most of the interviews the term virtual world or virtual platform was brought up as part of the description of the metaverse. The idea of users interacting in virtual computer-generated worlds that mimic and or enhance real world experiences also came across as a standard theme when describing the metaverse.

4.2.1 VIRTUAL WORLDS

A virtual world or three-dimensional computer-generated environment provide platforms for users to interact with each other while logged onto a personal computer or laptop and accessible through the internet. (Dionisio, n.d).
These environments will allow users to explore, create and interact with each other in close to real time. These virtual worlds can range from simple chat rooms to more complex environments designed to mimic the real world complete with landscapes, buildings, currency, and other objects. As Head of Non-Motor Claims R.R explains, *“It gives you as a person the opportunity to get into another world”.*

Avatars in virtual worlds

In these virtual worlds, users would be able to create digital versions of themselves and then also interact with other virtual users in the environment. Avatars will become digital representations of users in virtual worlds. In doing so users would be able to choose a name and through customisation alter the avatars appearance and characteristics. (Kafai, 2014)

Within the virtual insurance landscape, the idea of Avatars being used does pose some potential risks and benefits to insurers and insurance consumer in the form of theft and fraud, privacy and data security breaches and avatar misrepresentation. However certain benefits such as enhanced customer engagements, personalisation

and customisation leading to immersive virtual experiences as well as risk visualisations and collaborations could all be possible.

Time and distance barriers will be broken down allowing people to interact with each other in new and exciting ways. These worlds will stimulate learning, creativity and connection with others that were previously not possible. The worlds could in turn develop into new platforms for education, entertainment and commerce making it a potentially transformative technology.
Virtual worlds in the metaverse will relate to each other, creating a network or virtual environments accessible through the internet. Chief Operating Officer R.P was quoted in saying *"it's all about virtual reality goggles allowing the mind to see what's not really in front of them*".

4.2.2 VIRTUAL REALITY GOGGLES OR VR HEADSETS

The Oculus Headset

The Oculus VR headset was initially built by Oculus VR which was a technology company founded by Palmer Luckey who at the age of just 20 years old set out with a goal of making virtual reality more accessible and affordable to the public. His work and subsequent development of the Oculus VR headset sparked a resurgence of interest in virtual reality technology. This interest resulted in Facebook acquiring Oculus for 2 billion dollars. (Magazine, 2014)

Head of Motor Claims S.U says *"the metaverse is about putting on these virtual reality goggles and you get to immerse yourself".*

The idea of immersion in the metaverse can be referred to being completely absorbed and surrounded by this virtual world or environment to a point where it feels like you are there. (Authors, 2022).

Users will get to experience environments as if they are there and allowing for an experience that is so convincing and realistic that users forget that they are in a digital generated environment.

To achieve this, a combination of advanced technology and sophisticated design would be necessary. This would include high quality graphics, advanced tracking systems and intuitive interfaces that allow users to interact with the virtual environment in a natural and seamless way. As technology advances so will the levels of immersion. (At nap, et al).

The levels of immersion in the metaverse or the degree of realistic experiences in the metaverse could potentially have several impacts on the insurance landscape. Enhanced customer engagements and experience through customisations will allow insurers to explore new product offerings and services leading to increased customer satisfaction. The level of adaptation required by insurers will require them to practice and effectively navigate the unique challenges and opportunities presented.

4.2.3 DATA

Head of Analytics F.G notes that *"everything we do on the internet both good and bad is logged and analysed".*

Data tracking in the Metaverse

His idea in defining the metaverse was through that of not just virtual reality but through data. Data will be the backbone of the virtual worlds developed in the metaverse. (Verappen, 2022).
The data will drive its growth, evolution and most importantly the overall user experience. The data will be used to personalise the experiences of the users, providing them with unique experiences that will be tailor made to their individual preference and needs.

Machine learning algorithms will be used to analyse behaviour and preferences allowing for these virtual environments to be updated and improved in real time. The tracking and storage of data in the metaverse will be a complex process requiring advanced technologies and protocols. (Manea, 2023).

One such approach would be using distributed ledger technology, such as blockchain. This technology would provide a secure and transparent way of recording transactions

and data, which could be useful for tracking virtual transactions and ownership of virtual assets in the metaverse.

As much as the data will play a critical role in shaping these virtual worlds, it is only part of a larger system. Even though the data will be used to create, store, and manage the vast amounts of information required to build and maintain virtual environments, without the underlying technology, these environments would not be possible. Without advanced graphics and simulations, these personalised experiences would not be immersive. The metaverse is a complex system that requires the integration of multiple components, including data, technology, design, and other elements. (Same, 2022).

4.2.4 QUANTUM COMPUTING

Even though still in its early stages of development, quantum computing is seen to be one of the most cutting-edge technologies that exists today. (Ringuet, 2021).

It's hard to predict when quantum computing will become widely available, but we are most likely a few years away from widespread adoption.

As highlighted by chief operating office R.*P "quantum computing will give us a much clearer view of virtual reality"* This statement does hold weight from a metaverse and virtual reality perspective.

Artificial Intelligence and Graphic Rendering Techniques

As quantum computing evolves, AI and graphics rendering techniques will play a critical role in the metaverse, especially when developing realistic, immersive, and interactive experiences. One of the biggest challenges in rendering is the presence of noise in images, AI-based algorithms can remove this noise without sacrificing image quality. AI based super-resolution techniques can also be used to generate high-resolution images from low resolution inputs. Style transfer techniques also use AI algorithms to transfer the style of one image to another and this is useful when creating unique visual effects with a consistent style.

The light field rendering uses an array of cameras or other sensors to capture information about the light in a scene. The AI based algorithm used here can use the

data to generate highlight realistic renderings with accurate lighting and shadows. Lastly, neural rendering techniques use AI algorithms to generate images directly from 3D models, bypassing the need for traditional rendering pipelines. This results in faster and efficient rendering with the ability to generate highly detailed and complex scenes in real time. (Calvella, 2022)

These advancements have the potential to revolutionize the insurance landscape within the metaverse however their impact will depend on factors such as regulatory frameworks, user adoption and ethical considerations surrounding privacy and data usage.

4.3 INSURANCE IN THE METAVERSE

Just as the metaverse develops so will insurance be an ever-evolving concept. As virtual and augmented reality emergers, so will the insurance landscape. Insurance in the metaverse could be divided into two categories, that being physical and virtual insurance.

Physical Insurance

Defined as an insured asset is said to be a physical object which is a usable and or movable article which has value and for which a market value can be ascertained and the same is owned/purchased by the insured beneficiary which is the subject of insurance under the master policy. (Insider, 2023)

This definition also fits into the idea of traditional insurance which has been in use for many years and based on established practices and principles. Usually offered by large insurance companies and designed to provide financial protection against various types of risks, such as property damage, liability, and illness. This type of insurance usually involves the payment of premiums by a policyholder in exchange for the coverage, and may include deductibles, limits, and exclusions. These policies are regulated by the government to ensure they comply with certain standards that are fair and equitable for the policyholder.

Virtual Insurance

Virtual insurance, which is currently referred to as digital insurance within traditional, is a type of insurance that is delivered entirely online, without the need for physical interactions between the insured and the insurer. It is a newer form of insurance that has emerged because of advances in technology, particularly in the areas of artificial intelligence, machine learning and blockchain. This insurance involves the use of digital platforms that offer insurance policies, claims processing as well as customer service. Some insurance companies have already started using advanced algorithms to underwrite policies and to evaluate risk, allowing them to offer more personalised options and pricing. (Balasubramanian et al, 2021).

However, within the metaverse, virtual insurance will take on another definition and will refer to insurance policies that will cover risks associated with virtual environments, such as online games, virtual worlds, and other types of immersive digital experiences. As the metaverse evolves and becomes more integrated into everyday life it will become increasingly important to protect individuals and businesses from potential losses and liabilities within these new digital landscapes.

Chief Product Owner A.K said, *“it is either going to be completely mainstream, and become like the matrix or nothing is going to happen”.*

The growing consensus is that the metaverse will become mainstream, in the foreseeable future. With so many applications already available within the virtual and augmented reality spaces that are currently being used in everyday life, such as video games, interactive entertainment, and even live teleconferencing. The potential of the metaverse is vast and even more so within insurance. (Mgildea, 2022).

Bridging the gap between geographical distances allowing for a more connected industry and society is very possible in the event of mainstream adoption. As the technology becomes more accessible from a social and financial perspective, it is likely that the use will become more widespread across all businesses and not just insurance. The implications in the way we engage not just from an insurance perspective but from a human perspective will have a major impact on how we engage in general. (Balasubramanian et al, 2021)

4.3.1 INSURANCE PRODUCTS IN THE METAVERSE

As the metaverse continues to develop and expand, an ecosystem of products and services will be developed to cater for the individualised needs of consumers. These services and products will support social interaction, content creation as well as consumption, communication, and commerce. These products could cover virtual identities, avatars, chat and communication tools, virtual marketplaces, virtual worlds, and mixed reality applications. (Council, 2023).

According to Head of Non-Motor R.R, *"If NFT's are able to be sold for large sums of money, then anything is possible".*

The Metaverse has the potential to provide insurance companies with opportunities to develop a wide range of innovative products and services. With 3D visualisations, immersive experiences, interactive gaming, and virtual reality applications. Insurers can stay abreast of the latest technological advancements and in doing so would be able to take full advantage of its potential.

Insurance Products

The insurance industry may need to develop new products to cover virtual assets and liabilities, as well as address potential risks such as cyber fraud and data breaches. The use of virtual currencies, such as NTfs, and the potential for increased online transactions may then create opportunities for insurers to expand their reach and offer innovative coverage options. These product offerings could cover the following:

"Crypto Asset Insurance "this type of insurance policy would cover the loss or theft of virtual currencies stored in digital wallets. This policy would typically include coverage for loss due to hacking, malware, or unauthorised access to digital wallets.

"NFT Insurance" This would provide coverage for the loss, theft, or damage of the NFT's. This policy would help protect collectors and owners of NFT's from financial loss due to events such as hacking or server crashes.

"Smart contract insurance" This type of insurance would provide coverage for losses related to the execution of smart contracts on blockchain platforms. This type of

coverage would be particularly important for individuals and organisations like insurers using smart contracts for financial transactions involving virtual currencies and NFT’s.

“Decentralised Exchange Insurance:” this type of insurance would provide cover for losses related to decentralised exchanges (DEX) that allow users to trade virtual currencies and NFT’s. This policy would help protect users against losses due to hacking, server crashes, or other technical issues.

"Code Insurance "in the metaverse could refer to insurance products designed to protect individuals and organisations from losses or damages resulting from errors, bugs, or vulnerabilities in the software code that powers the metaverse. For example, this type of insurance product would be able to cover widespread crashes or data loss, which could, in turn, result in financial loss.

"Platform Insurance" could be another exciting product developed for the metaverse because it could be developed to protect users and platform owners from losses or damages. For example, platforms in the metaverse could have users creating and sharing content that may infringe on others' intellectual property and could cause harm in various ways. Platform insurance would cover liability damages and protect owners from legal costs.

"*Interruption Insurance"* in the metaverse could cover platforms that suffer from technical issues and downtime or service interruptions that could result in lost revenue and damages for both platform users and owners. This cover could protect against the financial impact of these disruptions.

"IP Protection Insurance" As platforms offer tools to content creators to monetise their work, such as virtual marketplaces, subscription models, or advertising. Insurance products could be developed to protect creators from financial losses resulting from intellectual property infringements, piracy, and other online issues.

"Reputation Insurance" could be developed to protect the reputation of users as they could expose themselves to and be at risk of negative publicity, cyberbullying, and other issues that impact the image of the platform.

"Virtual Asset Insurance" will be relevant as the metaverse will be home to various virtual assets, such as currency, digital art, and virtual real estate. Insurance products will emerge from this to cover any losses with the metaverse.

"Virtual Travel Insurance," as the metaverse develops and grows with more users becoming more immersive, people will spend more time 'travelling' within it. Insurance products could be developed to protect these travellers from losses resulting from reduced or lost travel days in the metaverse or even cancellations of services.

"Virtual Event Insurance" would cover virtual events, conferences, and even concerts that become more common in the metaverse. Products could be developed to protect event organisers and attendees from losses resulting from event cancellations, technical issues, network challenges, or any other related problems.

"Virtual Weather Insurance" would cover weather patterns and virtual natural disasters that might occur through the evolution of AI within the metaverse.

Insurance Services

Services in the metaverse will be diverse and ever expanding and as the technology evolves, so too will the opportunities in these virtual worlds. The service offering in the metaverse could cover the following. (Lawton, 2022)

"Virtual education and training" The metaverse can be used for educational purposes, such as training and simulations. This could be particularly useful for industries that require hands-on training or for insurers to showcase their services within a virtual space allowing the customer to experience the claims process from underwriting to claims stage.

"Virtual advertising and marketing" As the metaverse grow, virtual advertising and marketing opportunities will become common allowing brands to create virtual experiences to promote their services.

"Virtual reality inspections" Users and insurance inspectors could put on a virtual reality headset and enter a digital space where they can interact with a virtual vehicle

and its components, this would allow vehicle inspectors to inspect the vehicle from any angle, and to zoom into specific areas of interest.

"Photorealistic Imaging" this approach would be to use photorealistic imaging technology to create highly detailed, three-dimensional models of real-world vehicles which could then be placed in virtual environments.

"Remote Inspections" Virtual vehicle assessments could potentially be done using video conferencing or other communication technologies.

By getting engaged in virtual reality, your spending patterns change, then your assets change and the need for property and casualty insurance changes*" these are the words of Chief Operating Officer R.P.*

In the metaverse, buying virtual goods and services will become standard for any user engaging in these virtual platforms. With this it is likely that peoples spending patterns will shift to prioritise these virtual experiences and goods. They may also adopt a subscription-based approach to obtaining virtual experiences, rather than paying for tangible ones. Users may then also look at spending more on experiences that create longer lasting expressions like buying tickets to a virtual concert or purchase a 3D avatar of a character they admire. Overall, spending patterns are more likely to change. (Lee, 2021).

4.3.2 INSURANCE SKILLSETS IN THE METAVERSE

The insurance industry will require a different set of skills along with current skillsets already available. And even though Chief Information Office A.S mentions*, "From a software skills perspective, I don't believe that business need to own the technology service offering end to end as partners in the environment can make this easy".*

Outsourcing

Businesses may need to gain the necessary skills to operate in the Metaverse, as it is relatively new and evolving. However, many of these businesses, including insurers, can acquire the necessary skills through training, development programs, hiring individuals with the skill sets, or partnering with technology companies and consultants to help them navigate the Metaverse. (PWC, n.d).

- Development and Design: Outsourcing the development and design work for virtual environments can be done through specialised companies or freelance developers ensuring high quality work is completed in a timely manner.
- Virtual and Augmented reality: Even though expertise in these areas may be short currently, outsourcing the development of these technologies could help ensure they are implemented correctly and efficiently.
- Marketing and Promotion: As the metaverse grows and becomes more popular marketing and promotional work will become increasingly important. Outsourcing these services to agencies or specialists in the field could yield more effective results.

Overall, outsourcing is a viable option in the metaverse, however it's important to carefully evaluate potential outsourcing partners to ensure that they have the necessary skills and expertise to meet the standards.

It would be important to note that the Metaverse will require a different mindset and approach to traditional business operations, and with that, so would the varying skills needed. Individuals working in this space would need to understand the technology behind virtual currencies, NFT, and the Metaverse itself. They will also need to be familiar with smart contracts, blockchain, and decentralised systems,

Insurance skill sets in the Metaverse will also require a strong online presence to reach potential customers. As a result, employees in the metaverse insurance market will need to have experience in digital marketing, social media, and online marketing channels.

As with traditional insurance, the metaverse insurance market will require individuals with strong risk management and underwriting skills. These individuals will evaluate the risks associated with insurance coverage for virtual currencies, NFTs, and Metaverse-related assets.

Insurance professionals in the Metaverse will also need to understand the legal and regulatory environment in which they operate. They will need to stay abreast of

changes in laws and regulations to virtual currencies, NFT, and the Metaverse and ensure that their insurance products and services follow these regulations. (Tobin, 2022)

4.4 REGULATIONS

Data Protection & Privacy

Regulation is a rule or a system that governs behaviour or activity in a particular field. Its fundamental goal is to manage and direct behaviour or activity to achieve a certain goal or outcome, such as maintaining order, promoting safety, protecting the public interest, or ensuring fair competition. A metaverse without regulation could be vulnerable to cyber-attacks and other security threats, putting the user data and virtual assets at risk.

A lack of regulation could also lead to discrimination against certain groups or individuals with the metaverse, potentially perpetuating real-world inequalities.

The spread of misinformation and propaganda could also stem from the lack of regulation and in doing so have a negative impact on society.
Large organisations with significant resources could potentially dominate the metaverse, stifling competition and limiting innovation. (Wheeler, 2022).

Chief Operating Officer R.P believes that “the greatest risk to mankind will be our inability to regulate the metaverse”. Without clear guidelines for data protection and privacy, without laws to prevent cybercrime and with that setting standards for ethical metaverse usage, the metaverse has the potential to pose significant risks to humanity if not regulated.

4.4.1 PRIVACY CONCERNS

Disclosure of Personal Information

The idea of disclosing personal information in the metaverse can be a complex issue as it balances the need for privacy with the need for social interaction and the sharing of information.

In the metaverse, personal information and data may be collected, stored, and shared without proper consent or protection. This could lead to a loss of privacy and increased exposure to cyber threats.

Users may be asked to provide personal information to access certain features or services, and their movements and actions within the virtual environments may also be tracked and recorded. This data could then be used for a variety of purposes, such as targeted advertising, profiling, or even political manipulation. Krishan, A. (Krishan, 2022).

Cyber Crime

Additionally, the Metaverse could facilitate new forms of cybercrime, such as identity theft, impersonation, and financial fraud. This could occur through hackers accessing sensitive information comprising virtual assets or through virtual currency.

Thus, it is critical to ensure that strong privacy regulations are in place, which are aligned with strong penalties for those who violate these laws. Lastly, users should be informed of what data is being collected, how it is being used, and who has access to it, and they should be given the option to control their data. Collard, A. M. (Collard, 2022).

4.4.2 CYBER RISKS

Hacking

As virtual assets and data start taking on real world values hacking could occur in the metaverse. Social engineering can be used to manipulate or trick people into giving up sensitive information to access systems, this could be done by impersonating someone or using fake identities to gain access.
Like any other software the metaverse can have security vulnerabilities that can be exploited as well. This could include exploiting bugs in the software, using brute force attacks to crack passwords or taking advantage of poorly designed security systems. Phishing, which is the use of fake websites can also be used to trick users into revealing sensitive information while malware can be used to steal data or gain access to systems. Gillis, A. (Gillis, 2022).

Intellectual property theft

This could take the form of cyber criminals attempting to steal or infringe upon intellectual property rights in the metaverse, such as copyrighted content or trademarks.

The metaverse is a complex network of servers and software, as such will be vulnerable to hacking and other forms of cyberattacks. The anonymity and global reach of the metaverse makes it an attractive environment for cybercriminals. This could include activities such as phishing, identity theft and financial fraud. (Pooyandeh et al, 2022).

With the Metaverse storing and processing vast amounts of personal and sensitive data, data breaches will become a reality. This could result in the exposure of sensitive information and the possible theft of virtual assets and currency.
Chief Information Officer A.S believes *“cybersecurity will be an issue however globally we can mitigate that; I am more worried about the localisation of issues such as bandwidth and data speeds and access to such in rural areas”.*

Infrastructure Challenges

Several challenges speak to and support this view. First, rural areas in South Africa still need more infrastructure to support high-speed internet connectivity; this includes the lack of fibre-optic networks and mobile towers. This results in low to no bandwidth. The costs of these connections are often higher than in urban areas, which can limit access to many people. In these rural areas, there is limited competition among internet service providers, which can result in higher processes and quality services.

Frequent power outages may also disrupt internet connectivity and slow data speeds. The lack of technical expertise in rural areas to install and maintain high-speed internet infrastructures also results in inconsistent connectivity.

So, from a South African perspective, only once these challenges are addressed can we address the cyber risk issue and ensure that, especially in rural areas, robust security measures are put in place. This would need to include encryption, multi-factor authentications, and regular security audits. Online training for these users will also be critical to ensure they navigate the environment safely and responsibly. Finally, clear guidelines must be established to hold individuals and organisations accountable for data protection and cyber security. (Loop, n.d).

4.4.3 ADDICTION

It would be important for organisations and regulators to consider the potential for addiction and to then implement measures to mitigate these risks.

Mental Health

Spending excessive amounts of time within these virtual environments can interfere with real-world responsibilities, such as work, school, and relationships. In addition, prolonged exposure to the Metaverse can lead to feelings of anxiety, depression, and stress and may even trigger or exacerbate existing mental health conditions.

Physical Health

Long hours in front of a screen and engaging in sedentary activities could lead to physical health problems, such as eye strain, back pain, and obesity.

Financial Stress

From a financial perspective, the possibility of users spending large amounts on virtual assets or subscriptions could lead to financial strain and debt.
As human beings are the majority already lack fulfilment in real life, the excitement and escapism offered by these virtual environments and the potential for social connections and validations through virtual interactions could lead to addictions.

4.4.4 ECONOMIC INEQUALITIES

Disparities

Characterised by disparities in the distribution of financial assets, access to education, health care and other important resources, the metaverse like many new technologies, has both the potential to exacerbate and alleviate economic inequalities. In terms of increasing inequalities, access to the metaverse may be limited by the availability and costs of the technology which could potentially widen the digital divide between those that have access and those who do not. Exarta. (Exarta, 2023).

Influence

Being a platform of virtual asset ownership such as virtual real estate or virtual currency. If these assets increase in value, those who own them may benefit from significant financial gains leaving the rest behind. The metaverse may also become a platform for influence and control, and those with the resources and power to shape these virtual worlds could wield significant influence over the experiences and opportunities available to others. (Council, 2022).

However, on the other end of the scale as noted by Analyst M.R*, "there is also a component of how the workplace can also be disadvantages to certain genders or races and that maybe moving into these virtual spaces will give them more power".*

Education and Training

The metaverse could provide new opportunities for education and training, making it easier for individuals from previously disadvantaged backgrounds to acquire new skills and knowledge more easily and without prejudice. This could then help level the playing fields and allow these individuals to forge new pathways to economic mobility and success.

Virtual Entrepreneurship

Virtual entrepreneurship and self-employment could provide a level of financial independence and stability for those who have limited access to traditional employment opportunities. The facilitation of remote work and collaboration could increase the flexibility and provide new opportunities for those who have difficulty finding and maintaining employment due to geography or other factors such as physical disabilities.

Collaboration

The metaverse could also provide new platforms for virtual communities, where individuals from diverse backgrounds can connect, collaborate, and support each other. This could help build social capital and create new opportunities for individuals from underrepresented communities.

These potential benefits however will need to depend on the design and governance of the metaverse and how it is implements in practice. The maximise its potential to reduce economic inequalities, it would be important to promote policies, regulations and initiatives that promote equality and opportunity for all. (Allam, 2022).

In conclusion, the risks and benefits posed to insurers and insurance consumers in the metaverse. Establishing clear legal and regulatory frameworks is key. Working together, insurers and regulators must work together to navigate the evolving landscape of the metaverse. This will ensure that appropriate regulations are in place to protect the interests of all stakeholders.

The immersive and interconnected nature of virtual environments will raise questions about data privacy and the protection of personal information. Robust protection

measures will need to be developed and should maintain vigilance due to the ever-present risk of digital threats.

From a landscape perspective the product offerings will need to address the district risks associated with virtual environments while a demand for a skillset shift where professionals would need to acquire new competencies to navigate the complexities of a digital world. The want and need to embrace innovation will allow insurers to effectively meet the unique insurance needs of individuals, businesses, and communities within this emerging virtual ecosystem.

4.5 CHANGING WHAT INSURANCE IS AND STANDS FOR

"I don't think it will change what we stand for" says Head of Non-Motor Claims R.R. the idea here is that even though insurance providers would need to develop new policies and coverage options to address the unique risks brought on by the metaverse resulting in the insurance as we know it evolving within the metaverse.

The core identity of insurance as a mechanism for risk management and protection is likely to remain relevant even within this new and rapidly evolving environment. Team Manager G.S believes that *"things will be done faster which will improve turnaround times however many people prefer dealing with a human being and there are some things you can't put into technology".*

Improved Efficiencies

The views of both participants are both true and relevant in terms of how human interaction will evolve within the metaverse. It's likely that the metaverse will enable new and more efficient modes of collaboration and communication, particularly for businesses that operate or are looking to operate across different geographies and time zones. Collaborative tools in the metaverse will make it easier and more cost-effective for businesses to connect and work together, regardless of physical distance. (Sharma, 2023).

"That personal touch will get better, the perception will still be there, and it will be cheaper and more efficient than physically travelling to the clients house" says Chief Operating Office R.P.

Decentralised Models

Traditional business models could be potentially disrupted as the metaverse could create new opportunities for decentralised and peer to peer business. Blockchain based systems could enable new forms of decentralisation models and commerce that could potentially reduce the need to intermediaries while building trust and transparency with the direct client. (Chen, 2022).
With that in mind the benefits of having an insurer operational in the metaverse could span the following:

- Access to a larger and growing user base, as insurers and business in general would be able to tap in this large and ever-expanding user base that is able to reach wider audiences that traditional channels might not be able to access.
- The opportunity for insurers to develop new and innovative product offerings will allow for the industry to tailor products and services to the unique needs and preferences of virtual world users.
- Lowering overhead costs is also another benefit as there would be no need to invest so highly in retail or commercial spaces to operate.
- Increase customer engagement will also be a critical benefit as these quicker and customised engagements will build stronger relationships with customers.
- There is also a potential for new revenue streams as insurers may be able to generate revenue from virtual advertising, virtual real estate development or virtual business activities.

4.6 BUSINESS AND THE DISCUSSIONS AROUND THE METAVERSE

- When asked about business opportunities in the metaverse, Analytics Lead, M.S said, *"Unless you have a very clear user case of what the metaverse brings to you as an individual, it's going to take a long time to adopt"?*

- The Metaverse is still an emerging concept, and it is still relatively early for any comprehensive user case studies to be available. However, some early

examples of organisations and individuals exploring the potential of the Metaverse and its impact on business and society.

- Some video game companies have been experimenting with creating immersive and interactive experiences within the Metaverse. These experiences allow players to enter a virtual world and interact with other players and the environment in new and innovative ways. In addition, some organisations are exploring the potential of the Metaverse for virtual events, conferences, concerts, and other social gatherings. These events have the potential to be more immersive and engaging, with the potential to reach a much larger audience than would be possible in any physical setting. (Lee, 2022).

4.6.1 RETURN ON INVESTMENT ROI)

Risk Analyst M.R clearly states that *"If had to choose to be the best AI person in the world or the best Metaverse person in the world, I would have to choose AI".*

So even though it's important to note that the metaverse and artificial intelligence are not necessarily competing technologies but rather complimentary to each other and when used in combination with each tend to produce better results for an end user. The metaverse can be used for a wide range of technologies, business and social, while artificial intelligence can be used to automate and streamline a wide range of processes while identifying patterns and making predictions.
With that in mind it would be difficult to answer as to which technology could create more ROI for business moving forward into the not-so-distant future. The possible answer to that would all depend on a wide range of factors, including the specific application, industry, and user case. (Wallace, 2022).

Innovation manager A.K believes *that "both the metaverse and AI have the potential to generate significant ROI, but the exact amount will depend on the specific application and how the technology is implemented".*

Gaming and Integration

As seen in gaming, virtual events, and e-commerce; the Metaverse could create new and innovative products and services that generate a wide range of processes, such

as improved customer service, supply chain management, fraud detection, cost savings, and efficiencies.

Integration of these technologies into an organisation's overall business strategy and operations, as well as the specific use cases and benefits it provides. Based on the participants' thoughts, the combination of the Metaverse and A.I. could be extremely powerful, allowing for new forms of communication and collaboration informed by data and analytics. In summary, both technologies have the potential to generate significant returns when used effectively.

4.6.2 MONETISATION

The idea of monetisation in the metaverse would involve.

- generating revenue through selling virtual goods and services,
- advertising and sponsorships, and
- creating paid experiences or services within a virtual environment.

Even with the monetisation idea the risks and benefits to insurers and insurance consumers remain. Being able to insure virtual assets and activities within the metaverse could introduce uncertainties in risk modelling. Insurers may face difficulty in understanding and keeping up with the complex ecosystem resulting in potential coverage gaps. There could also be challenges in navigation the regulatory landscape and addressing potential legal and compliance issues specific to the metaverse.

On the insurance user side, engaging in a monetized metaverse may require users to share personal data and engage in financial transactions. There could also be the challenge of determining the value of a virtual asset within the metaverse which could be very subjective and disputes over ownership or loss could arise.

Their also stands probably benefits to insurers in the form of new opportunities to offer innovative insurance products. This could attract a large and diverse user base allowing insurers to reach a broader customer demographic.

Insurance users on the other hand would benefit from monetisation as they could now protect their valuable virtual assets against theft, damage, or loss. Financial security could be offered to virtual businesses and content creators.

Risk Analyst M.R said, *"Maybe the metaverse should have been sold to the gamers in order to develop an environment to monetise"* this view on the metaverse is accurate to an extent, especially in the gaming world where the metaverse has continued to evolve and expand, with a wide range of games and virtual environments incorporating elements of the metaverse.

Games like "second life" and "Minecraft" allow users to interact with virtual environments like the metaverse. These worlds were being developed in the late 1990s as part of a conceptualisation that has continued to evolve and expand. (Cheah, 2023).

"I think the metaverse and insurance, in terms of the technological tree, we are hitting the branches and not the trunk," says Knowledge Analyst M.F.

User Cases

The idea is that monetisation in the metaverse will depend mainly on various factors, including specific use cases and how insurance products and services integrate into the metaverse.
How insurance products are sold in the metaverse will depend on the products and how it is marketed and offered to users within a virtual environment. For example, if a user in the metaverse engages in activities that pose a virtual risk to virtual property, vehicles, or events, then traditional insurance products such as property and vehicle insurance may still be relevant, however, with appropriate modifications done to accommodate the nature of a virtual loss.

4.6.3 VIRTUAL ASSETS

The 'FATF' (Financial Action Task Force)
The financial action task force or 'FATF' an inter-governmental body aimed at preventing money laundering and terrorist financing, defines a virtual asset as "a digital

representation of value that can be digitally traded, transferred, and used for payment or investment purposes. (Sheldon, 2022).

“NFT’s hey? Or tokens, if those can get sold for millions then anything is possible when it comes to virtual assets or virtual property” says Head of Non-Motor. R.R.

Virtual Assets

A virtual asset is a digital representation of value that can be traded, transferred, or stored electronically. These virtual assets are distinct from traditional assets such as physical goods or currency as they only exist in digital form and not in physical. The market thus determines the values of these assets through the concept of demand and supply.
The values of these assets can be highly volatile and subject to speculation and manipulation.

Knowledge Analyst M.F however asks*, “is it really worth investing money into virtual spaces and environments?”*

Metaverse Investment

This viewpoint could be challenging even though to some, just like M.A investing in the metaverse can be viewed as a highly speculative investment that will come with significant risks and potential rewards.

The potential benefits include capturing a share of the growing market for virtual goods and services and the potential for new business models and revenue streams to be generated. However, there is also validity in the idea that the metaverse will only come around with risks. The market is still being highly nascent and speculative, with many unknowns around user adoption, technology development, and regulatory frameworks. Therefore, insurers should consider their risk tolerances and investment goals before investing in the metaverse and conduct thorough due diligence on any virtual environments they are considering.

4.7 IMMERSION

Ready Player One (2018) was based on the bestselling novel by Ernest Cline, a science fiction adventure in a virtual world called the OASIS. It created a stunning immersive, detailed world that drew viewers into the story and captured the spirit of the video game culture. Blade Runner 2049 (2017) was a movie that featured terrific visuals and a deeply immersive world that was able to draw viewers into the story and characters.
These films demonstrated the power of immersive experiences and allowed viewers to experience new environments that could only be generated on the back of some virtual reality. (Hudson, 2018).

Escapism

Head of Salvage Management N.C. believes that *"humans need an escape and virtual reality, and gaming does exactly that".*

The metaverse could assist people in escaping from their everyday lives, allowing them to explore different scenarios and activities. There could also be opportunities to explore new identities and roles while connecting with people worldwide. However, on the opposite end of this lies the practice of immersion to escape or disengage from reality to find solace or comfort.

This can be seen as unhealthy, especially when it starts becoming a habit which may lead to avoiding problems and a lack of self-awareness. In extreme cases, this could lead to addiction, depression, or even suicide. This extreme example would make it difficult to relate to others in the physical world and, in doing so, fail to understand the roles and responsibilities of everyday life.

> Immersion leading to escapism can lead to a lack of productivity, as people may become more reliant on virtual activities within games or the metaverse. The ripple effect can lead to disconnected thinking and difficulty with reasoning, as making sense of the natural world without engaging with it becomes challenging. Being mindful of how much time is spent engaging in escapism activities is critical. (Mileva, 2022).

CHAPTER 5: CONCLUSIONS AND RECOMMENDATIONS

5.1 KEY LEARNINGS

In conclusion, the metaverse is an emerging and rapidly evolving technology that is poised to have a significant impact on the insurance industry. As virtual environments become increasingly popular and users invest more time and resources into virtual experiences, the need to insurance coverage and protection for virtual assets and activities will become more pressing.
Some organisations are already exploring new ways to provide cover using blockchain technology and non-fungible tokens. While there are still challenges and uncertainties, the potential of the metaverse to transform the insurance industry is clear. Over time it will be interesting to see how insurance companies adapt and innovate to meet the changing needs of users.

The Insurer Perspective

The emergence of the metaverse presents both risks and benefits for insurance companies. While this new digital frontier offers exciting opportunities for growth and innovation, it also poses significant challenges that must be addressed, such as legal and ethical concerns and a rapidly evolving digital landscape. However, with the right frameworks, regulations, and products in place, insurers can capitalise on the benefits of the metaverse while mitigating its potential risks. As the metaverse continues to evolve, it will be critical for insurers to adapt and embrace new technologies and practices that enable them to thrive in this exciting and dynamic new environment. Marom, L. (Marom, 2022).

As the metaverse continues to evolve, insurance companies will need to adapt their business models, product offerings, and operational practices to effectively address the unique risks, and opportunities presented by this emerging virtual world. Insurers will need to stay ahead of emerging risks and be able to adapt their underwriting practices accordingly.
Being able to develop consistent and standardised regulations for metaverse insurance will be crucial. Aligned to this, ensuring consumer trust and compliance with privacy regulations will be vital for insurance companies operating in the metaverse.

And lastly ethical considerations will need to be addressed transparently and ethically, ensuring that their policies and practices align with societal expectations and evolving norms. (Wallace, 2022)

The Insurance Consumer Perspective

Insurance consumers in the metaverse face a range of potential risks and benefits. On one hand, the metaverse presents new and unique risks such as cybersecurity threats, liability risks, and uncertainty around coverage while managing low to no regulation in the space. On the other hand, the metaverse offers insurance organisations an opportunity to develop bespoke and individualised product offerings allowing for consumers to have increased accessibility to these products.

The research and perspectives shared during the interview confirmed that the metaverse is developing rapidly and evolving into a concept generating a wide range of perspectives from users. The general view around the metaverse's current state seems exciting and full of potential, although some have met the idea and implications of the metaverse with some scepticism. However, one aspect is clear: the metaverse will become more prevalent. As technology continues to advance and virtual environments become more immersive and interactive, the metaverse likely will become an increasingly important part of people’s lives.

Even so, to some extent, the future may be uncertain, the metaverse will be shaped by the needs and desires of its users.

As we move forward, it will be necessary for developers and policymakers to listen to users' perspectives and ensure that the metaverse is a safe and inclusive space that benefits all who use it. With the right balance of innovation, creativity, and user adoption, the metaverse has the potential to become a truly transformative and powerful force in the world of technology, business, and existence. (Atske, 2022).

5.2 WHAT WILL THE INSURANCE LANDSCAPE LOOK LIKE IN THE METAVERSE?

Evolving Landscape

The insurance landscape in the metaverse will rapidly evolve as more users engage with virtual environments and experiences. However, the business landscape is still in its early stages however there are insurers exploring new ways to provide coverage and protection for virtual assets and activities. Insurance companies will need to collaborate and partner with metaverse platform providers, developers, and other stakeholders to develop policies and services that address the unique risks and challenges of virtual environments.

Innovative Products

One potential area where insurance products would most likely be offered is in the virtual property and assets space. As it currently stands, users can own and trade virtual items such as land, buildings, and even virtual currency.
Products would need to be developed to protect these virtual assets from theft, loss, or damage. As users engage in online interactions and transactions within the metaverse, there is a risk of cyber-attacks and data breeches. Innovative and out the box thinking would be needed here to develop products that could protect these users from financial and reputational damage.

Regulation

Regulation is a topic that has sparked much debate and speculation due to its complexities. With the metaverse currently not bound by physical borders, and as such present's unique challenges for regulators. There continues to be debate around transferring physical world laws such as intellectual property, fraud, and data privacy over to the metaverse.
Discussion also covered developing new regulations specific for virtual worlds. In doing so developing a new regulatory body that would be responsible for overseeing the metaverse. However self-regulation may also play a role in the future as the

metaverse being a community driven platform, allows users to collaborate and self-regulate to ensure virtual worlds operate fairly and ethically.

User Acceptance

The acceptance of the metaverse by users will depend on a variety of factors, including accessibility, user experience, privacy and security, cultural relevance, and social acceptance.
Accessibility but be there for different ages, backgrounds, and abilities. The user experience must be intuitive, engaging and most importantly enjoyable which will encourage further usage.
Users would also need to feel safe in these spaces and data breeches, cyber-attacks and harassment would need to be mitigated otherwise this could negatively impact user acceptance.

The metaverse must also be socially acceptable and not viewed as a niche or fringe platform. Widespread acceptance from the mainstream society can help drive adoption and usage. (Wand, 2022).

Skills of the Future

As the metaverse landscape evolves, employees in within the insurance sector would need to develop new and relevant skillsets to effectively engage in the metaverse.

As the metaverse is a digital space, insurance professionals will need to develop a strong understanding of the technology that underpins it. this will include technology such as blockchain, artificial intelligence and virtual reality.
Strong digital marketing skills will also need to be developed, which may also include the ability to create content for social media platforms while having the abilities to build strong relationships with client in virtual communities.

With the metaverse being a highly collaborative space, insurance professionals will need to be able to work effectively with other professionals, including developers,

designers, and marketers. Strong analytical skills will also need to be developed to understand and manage the large amounts of data being generated by the metaverse.

Employees in the insurance sector will need to be adaptable, creative, and tech-savvy. Developing these skills will be critical for success in this new digital landscape. (Milian, 2022).

In conclusion, the metaverse will present insurance companies with new and unique risks that require innovative solutions. Insurance offerings will expand beyond traditional coverage as these insurers look at developing specialised products and services for the metaverse. On the regulation front, frameworks will emerge to govern various aspects, including insurance within virtual worlds. These regulations may focus on data privacy, cybersecurity, virtual assets, and dispute resolution.

However, the success and subsequent landscape of the metaverse will reply on user acceptance and adoption. As these users engage in virtual activities and subsequently own virtual assets, insurance will become a critical component of their risk management strategy. Insurance companies will need to educate users about the importance of metaverse insurance and highlight the benefits it offers.
Insurance professional will need acquire expertise in virtual asset valuations, risk modelling and well as the understanding around AI, data analytics and emerging technologies. These skills would be crucial for insurance companies to develop an operating landscape that serves the ever-evolving needs of metaverse users.

5.3 RISKS AND BENEFITS TO INSURERS AND CONSUMERS

5.3.1 BENEFITS

The Global Client

Insurance companies will have opportunities to increase their market share on a global scale. The ‘global’ client will offer insurers opportunities for growth and revenue diversification whole ensuring that they stay ahead of the innovation curve. Engaging with this ‘global’ client will require insurers to develop product and service offerings that cater for the sophisticated and digital savvy consumer who prioritises convenience, personalisation, and innovation.

Improved Risk and Data Modelling

With the metaverse expected to generate vast amounts of data on user behaviour and interactions. The analysis of this information will become critical in informing risk and data models in insurance companies.
The data generated will be more detailed allowing for improved accuracy in risk modelling which would then allow insurers to develop more tailored products.
Forecasting and predictive analytics will drive decision making more heavily than historical data trends as the real time data feeds will allow for more proactive approach to managing risk and responding to market trends.
With the metaverse also touted to be a more collaborative space, insurers and other stakeholders will be able to develop new and innovative risk models, products, and services. There will be greater visibility towards risk exposures allowing for proactive opportunities for intervention. (PWC, n.d).

Cost Savings

Even though the initial outlay of capital towards hardware, software, training and change management initiatives will be high at first. The long-term benefits of metaverse engagements will mitigate the initial investment and quickly render a substantial return on investment.

The metaverse in time will offer virtual spaces to not only socialise and engage but also to work. This could lead to significant cost savings in rental and related expenses. With virtual meetings enabled as the primary engagement channel, business travel costs would then be reduced allowing for a more efficient use of time and resources.

Virtual collaboration tools could then allow for improved communication and productivity, while digital self- service options would reduce the need for manual intervention and support.

The processing of claims would become more efficient by leveraging on digital technologies such as machine learning and automations. This could lead to faster processing times and reduced costs. (Bughin et al, 2018)

Enhanced Brand Visibility

Insurers can create a virtual presence in the metaverse through the development of virtual stores or offices. This would also allow for a more immersive experience for customers. There would also be an opportunity to develop and customise virtual assets, such as avatars, virtual items, and virtual spaces that reflects the brands' identity. This would help increase brand recognition and create consistency across different platforms, (Bughin et al, 2018).

Virtual events such as conferences, product launches and even training could enhance brand awareness for insurance companies which could then have a positive impact on exposure and engagements with target audiences.

Developing immersive experiences for insurers will change way insurance is perceived, leveraging off the unique capabilities of the metaverse, insurers can create immersive customer experiences, such as virtual product tours and claims simulations. This could help create a stronger emotional connection with the brand and enhance brand loyalty.

Future Proofing

As the technology becomes more sophisticated and accessible, insurers would need to consider how to future -proof themselves for the metaverse, allowing them to stay ahead of the technology curve while ensuring market share is maintained and possibly improved on.

Having a strong understanding of immersive technologies while investing in hardware, software and training of employees will be essential. Insurers can start building a virtual presence through the development of virtual store fronts, offices, immersive marketing campaigns as well as virtual events.

Partnering with metaverse platform companies to create virtual experiences that can promote their brand in the metaverse. Aligned to this would be the development of specific metaverse products and policies which can be sold in the metaverse. (Peterson et al, 2022).

In conclusion insurance companies could expand their reach and potentially serve clients from different parts of the world. The metaverse will generate massive amounts of data on user behaviour, interactions, and virtual asset values. Companies could then leverage off this and combined with advanced analytics and AI technologies could improve their risk modelling and underwriting process. Virtual interactions within the metaverse could streamline operations and reduce administrative costs associated with traditional insurance practices.
By actively participating in the metaverse ecosystem, insurers could establish a presence, sponsor events, and collaborate with metaverse developers to further enhance and personalise engagements with users. Adapting early however will be key and insurers who are able to do so will be able to stay ahead of the curve, gain competitive edge and be better positioned to serve the evolving customer and their needs.

5.3.2 RISKS

As there are opportunities for insurers, there also comes several potential risks as engagement increases within the metaverse.

Cybersecurity Threats

Cyber security threats can result in financial losses, reputational damage, and legal liabilities. Being a digital environment, the metaverse will be vulnerable to various cyber threats that can impact both the platform and the user. Robust security measure will need to be put in place such as two-factor authentication and anti-malware software. Operators in the metaverse will also need to implement security protocols such as encryption, access controls, and monitoring to prevent and detect cyber-attacks.

Regulatory Risks

The regulatory environment will need to be airtight and developed adequately to ensure that insurers comply with all relevant regulations and laws, such as data privacy and protection regulations.

Platform operators will have to comply with data privacy and protection regulations. Intellectual property regulations will also need to be adhered to especially since the metaverse relies on the creation and sharing of data and virtual assets. (Weingarden, 2022).

Tax regulations would also need to be looked at and adhered to especially since virtual assets will have a real-world value, and finally being a social environment, users and platform operators will need to comply with content regulations surrounding hate speech, harassment, and adult content.

Emerging Risks

Insurers and organisations as a collective will need to be aware of any emerging risks that could develop because of metaverse usage, health impacts cause by excessive metaverse use resulting in addiction could have a negative impact on users.

Virtual crime in the form of identity or avatar theft and duplication, fraud and extortion could increase as more users engage in the metaverse. Psychological risks such as exacerbating social isolation and other mental health issues will need to be monitored.

Deepfake technology could enable the creation of realistic avatars that could be used for fraud and malicious activities. Misinformation could also be a risk in the metaverse, where can spread rapidly and have significant impacts. And finally ethical concerns will be in the forefront of early metaverse usage as aspects such as potential for discrimination, exploitation, and other unethical practices surface. (Piesse, 2022).

Operational Risks

The metaverse relies heavily on technology, and with that comes the possibility of technical failures such as system outages, network disruption, and hardware malfunctions which could have a significant impact on operations.
Insurers may also face governance risks as the metaverse becomes more complex and governance around unclear and inconsistent rules, lack of transparency and conflict of interest becomes more prevalent.

Being a decentralised and user driven platform, the metaverse could also generate reputational risks brought on by users and or employee's activities, leading to a loss of trust among customers, investors, and other stakeholders.

Regular risk assessments will need to take place, along with continuous monitoring and incident response plans. Strong governance structures will need to be in place aligned to an organisational culture of accountability and transparency. Insurers and insurance consumers will need to ensure they are informed about regulatory developments while engaging in ongoing dialogue with regulators and industry groups to ensure compliance and good practice.

In conclusion, as virtual interactions increase, insurance companies will face a higher risk of cyber-attacks, data breeches and virtual asset theft. The regulatory landscape surrounding the metaverse is still evolving and those companies operating in the

metaverse may face challenges in navigating and complying with emerging regulations specific to the environment.
There is emerging or evolving risks may include virtual property damage, liability arising from virtual activities, virtual asset ownership disputes and emerging technology related risks. The metaverse's dynamic and rapidly evolving nature would then also pose operational risks and these companies would need to ensure a seamless integration with virtual platforms, be able to manage large volumes of metaverse-generated data and with adapt operational specific processes to specific metaverse requirements.

Mitigating these risks will be a proactive approach for insurance companies and investing in robust cybersecurity infrastructure, staying informed, developing comprehensive risk management frameworks, and fostering a culture of innovation and adaptability will be critical in ensuring they have developed themselves to manage solutions for a virtual world.

5.4 LIMITATIONS & POSSIBLE FUTURE DIRECTION

Currently, limitations include fragmentations of the metaverse ecosystem as well as privacy and security implications.

The lack of standardisation and the need for technology that doesn't exist currently makes it difficult for users to experience consistencies across platforms. Insurers may struggle to keep up with the constant changing landscape of the metaverse and in doing so find it difficult to stay current with the latest technological benefits.

In the Future, there is a possibility that insurers may infringe on privacy violations, lack of equal access across their client base as well as impact regulatory and HR compliance issues. These insurers may also face difficulties related to mental health, physical limitations, social and cultural impacts, and the potential monopolies in the metaverse.
Collectively these regulatory scepticisms and understanding the privacy and cyber security risks associated with new technologies will the critical. Krishnan, A. (Krishnan, 2022).

Products and services will need to maintain compliancy with relevant regulations and will need to provide coverage that can adequately protect individuals and organisations as they would in the real work with tangible assets. Moving forward this predominantly virtual world will require products and services that cater for digital fraud, theft, ransomware, and other cyber risks.

Even so, the consensus is that the there is a lot unknown about the metaverse and the future that it could potentially create. Some experts believe that by 2040 the metaverse will be a much more refined and a more immersive environment, while others are sceptical that if could reach that level of maturity. It is clear however that virtual reality and augmented reality will play a key role in the development of the metaverse, but there is still much to be explored regarding its potential uses and potential impacts. Debates continues around the concept of decentralisation and how it could be used to create a more democratic digital world. Atske, S. (Atske, 2022).

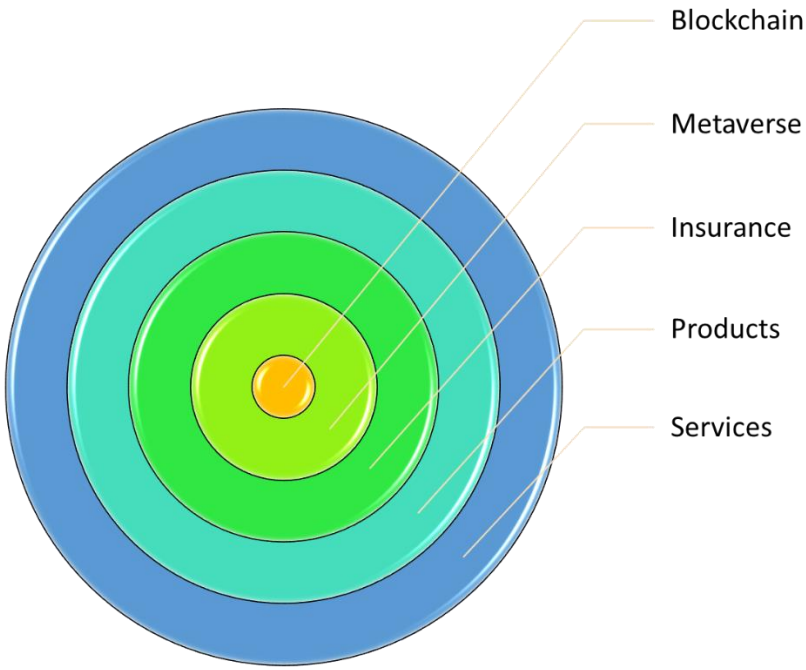
In closing organisations and insurers alike facing change and uncertainty with boldness, curiosity, a little excitement, and a core desire to make tomorrow better than yesterday should be at the heart of embracing a future that is uncertain.

This uncertainty can be both intimidating and exciting however that does depend on how it is viewed. When organisations become comfortable with uncertainty, infinite possibilities open and that can be an exciting prospect. Being able to overcome challenges and effectively leverage the opportunities presented by the metaverse may assist insurers in gaining significant advantages over their competitors as well as against organisation outside of the insurance industry and in doing so will contribute towards changing the way we as a species continue to work, live, and socialise.

In the boundless realms of the metaverse, life will take on new dimensions, where imagination becomes reality, and possibilities know no bounds. We would need to embrace the future where virtual and physical merge and find the extraordinary within the infinite horizons of the digital realm.
Within the metaverse, we will transcend the limitations of the physical, unlocking a world of infinite potential and boundless connections. As we navigate this landscape, we need to remember to shape our virtual existence with purpose, integrity, and

empathy. For in the metaverse, we will have the power to create, connect and redefine what it means to truly live an extraordinary life.

5.2.1 THE METAVERSE TO INSURANCE MODEL (INSIDE OUT MODEL)

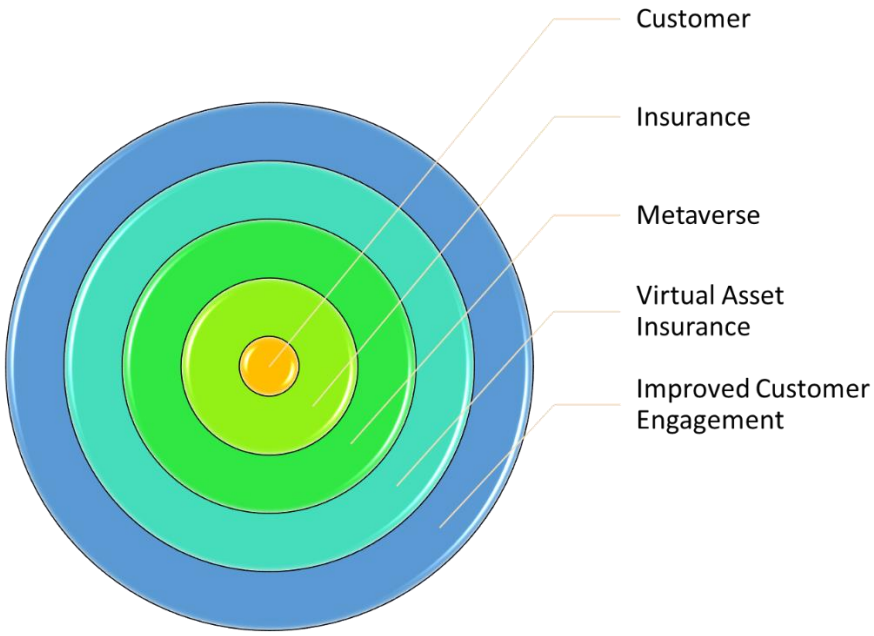


The foundation of this model would be a blockchain network that is able to provide a decentralised and transparent ledger for recording transactions. These transactions would form the basis of smart contracts which are self-executing programs that run blockchain and these would be used to automate and enforce rules.
The metaverse would then serve as platform that can be used to buy and sell products and services using some sort of virtual currency supported by the blockchain.

Insurance would then be integrated into the model to provide protection and peace of mind for the buyers and sellers. The smart contracts could be used to automatically trigger insurance payments in the event of a dispute or failed transaction. In line with this insurance providers could also use the blockchain to create innovative new products and services.
This model would then bring together a diverse range of products and services from various industries such as gaming, e-commerce, retail, entertainment and more.

Buyers and sellers would be able to transact with each other securely and efficiently while ensuring that their transactions are completed successfully and fairly.

5.2.2 THE CUSTOMER TO METAVERSE MODEL (OUTSIDE IN MODEL)



The foundation of this model would be the customer who is interested in engaging with the metaverse and purchasing some sort of insurance product. Through immersive interactive experiences these customers would be able to engage in a variety of activities, such as attending product launches or insurance information sessions.
The metaverse would serve as the platform for these customers to access these insurance activities, products, and services. They could attend session in virtual insurance offices or meet virtual insurance agents to purchase policies, submit claims or even manage their insurance portfolios.
As this all takes place, insurance products will be integrated into the model to provide protection and peace of mind to the customers. The product range could include traditional policies, such as life and health insurance, to more innovative products, such as cyber insurance or virtual property insurance which would all be purchased by the virtual currency of choice.

This model would create a highly innovative ecosystem that leverages off the strengths of each technology to provide a seamless and frictionless experience for customers.

The ‘inside out model’ can provide a range of opportunities for users, including increased security, access to new markets, improved customer experiences and more efficient processes. The opportunities can also bring greater innovation, affordability, and convenience in purchasing insurance, which will benefit insurers and consumers alike.

The ‘outside in model’ also has the potential to offer several benefits to the user, including increased accessibility, personalisation, lower costs, increased transparency, new forms of insurance products and most importantly improved customer experience.

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APPENDIX

Participant Information Sheet

Wits Business School
Sculpting global leaders

Good day Sir/Madam

First and foremost, I would like to thank you for taking the time to read this information sheet. By taking the time to read the following information, you will be given insight as to why the research is being carried out and most importantly what it will involve. After reading this form if you have any questions or queries related to the study please don't hesitate to ask.

My name is Rashad Mia, and I am a final year MBA student at Wits Business School. I am an information Manager who has worked in the Insurance industry for 18 years and with a keen interest in the evolution of technology within the industry, my research will look at the impact of the metaverse on the South African Insurance industry. Through this topic I will look at discovering and unpacking how will the South African insurance industry pivot in order to accommodate the challenges and opportunities in a virtual economy, how will it drive user experience in a virtual world and how will such a highly regulated industry adapt to this environment.

As a willing participant in this research paper, you will be given the option to take part in a face to face or virtual interview where I will be asking you questions around the metaverse and its relation to the insurance industry. The interview should last anywhere between 30-60 minutes. The interviews will be recorded for me to transcribe the conversation. This transcription will be provided to you for you in order to validate its accuracy. As an industry and or subject matter expert I would like to learn and benefit from your opinion and views so please feel free to answer each question to the best of your ability and understanding.

The information gathered will be used as part of my dissertation and through this published paper will be used to further understand how and if the South African insurance industry will be ready for this eminent future. All information from the interview and its transcripts will be kept confidential and you as the participant will not endure any costs relating to the research. Due to the voluntary nature of the research, you will be free to decline, or to participate from the research at any time without experiencing any disadvantage. The data collected will be stored by the researcher for a period of no longer than 6 months after the completion of the dissertation upon which the data will be deleted.

Once again, I thank you for your time and I look forward to engaging with you.

Researcher: Rashad Mia

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Supervisor: Emmanuel Quaye

Emmanuel.quaye@wits.ac.za

061 771 3369

Research Consent Form



Research Consent Form

Research Title: The Impact of the Metaverse on the South African Insurance Industry

Researcher: Rashad Mia

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073 260 9771

Study Overview: The study will explore and unpack the opinions and ideas of both insurance and technology leaders and how their views translate into understanding the metaverse and how the South African insurance industry is able to fit into it from a regulatory, customer and technology point of view.

As a participant, should you agree to contribute towards this topic, your answers and views will be recorded either through a recording device in the event of a face to face interview or through the recording functionalities that Microsoft Teams has to offer. Dates and times will be scheduled to suit your availability. There is minimal risk associated with this study and while the study will afford no individual benefits, it will however benefit the field of tertiary education and add value to the ongoing and developing subject of the metaverse and how it fits into the insurance industry.

Declaration of Consent

1. I have read the participation information sheet, I have asked questions about the study and received satisfactory answers to my questions. YES/NO

2. I understand that participation is voluntary and that I am free to withdraw myself or my data at any time, without any reason and without any adverse consequences. YES/NO

3. I understand who will have access to any data provided. YES/NO

4. I understand how the data will be stored, what it will be used for and what will happen to the data at the end of the study. YES/NO

5. I understand how the research will be written up and published. YES/NO

Ethics Clearance Certificate

Graduate School of Business Administration
University of the Witwatersrand, Johannesburg

Wits Business School Ethics Committee
Constituted under the University Human Research Ethics Committee (Non-Medical)

Ethics Clearance Certificate

Ethics protocol number: WBS/BA2493512/826

This certificate is only valid with a legitimate ethics protocol number and signed by the Researcher (below,

Project title	The impact of the metaverse on the South African insurance industry
Investigator / Researcher	Mr Rashad Mia
Nature of Project	MBA (Research Article)
Decision of the Committee	Approved, provided stakeholders and participants are guaranteed confidentialty.
Issue Date of Certificate	2022-10-17
Expiry date	Date of submission of the project / research report
Chairperson	Prof Anthony Stacey ☎ +27 11 717 3587 +27 82 880 4531 anthony.stacey@wits.ac.za

Declaration by Researcher

One copy must be signed by the Researcher and returned to the Chairperson of the Wits Business School Ethics Committee.

I fully understand the conditions under which I am authorized to carry out the abovementioned research and I guarantee to ensure compliance with these conditions. Should any departure to be contemplated from the research procedure as approved I undertake to resubmit the protocol to the Committee.

Signature

20/02/2023
Date:

Interview Guideline and Questionnaire

	Main Questions	Sub Questions
1.	How would you define the Metaverse	Have you heard of it
		Have you experienced it
		Are you curious to know more about it
2.	How do think the Metaverse will unfold and transform the Insurance Industry	Are we in for radical change
		Will we continue to remain risk averse and conservative
		Will we choose to miss the bus and rely on archaic ideologies
3.	Being a highly regulated industry , how do you percieve regulators to adjust to the Metaverse	Do you see regulations being lifted
		Do you foresee chaos with no control
		Do you see regulations becoming even more tighter
4.	What new dimensions and opportunities do you think the Metaverse will open up for the insurance industry as a while	Will It will completely change the insurance operating landscape
		Do you think As an industry we will follow the banking fraternity before commiting to anything
		will we continue to pursue archaic methodolgies to mitigate risk
5.	How do you believe the Metaverse will reframe human centred experiences towards Insurance	Do you believe that there could be more negative than positive perceptions and expectations
		How do you see this impacting the now new customer of the future
		Will the industry be led down a rabbit hole of unrealistic expectations
6.	How do you think insureres should start implimenting ideas around the Metaverse	Is there even these types of discussions taking place
		Does the industry need to evolve quick enough or chase the tales of insuretecs
		Is there even skillsets and resources capible of pushing the dial forward
7.	Where do you see the complexities arising when it comes to this new reality	Can you describe this as an impact to People, Processes and systems within the industry
8.	Do you believe that with the levels of cyber crime currently on the go, that we would be able to protect sensitive date in the Metaverse	Why would we even risk it
		Would the old insurer be unable to pivot into data protection initialtives on that level
9.	What are your views on insurance strategies of the future and are these in any way aligning to regulating virtual assets such as Crypto and NFT's	Can Crypto be seen as a sustanable transactional entity
		Is the insurance industry looking at ways of capitilising on virtual currency in the future
10.	As insureres moving into the Metaverse, so you foreseee them losing their core identity and funtion	Thinking outside the box, how do you see insurance evolving in a virtual environment, while providing services and products to avatars