AUGMENTED REALITY ADOPTION THROUGH METAVERSE AMONG GAMERS IN UTeM

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APPROVAL

I hereby acknowledge that this project paper has been accepted as part of fulfilment for the degree of Bachelor of Technology Management (Technology Innovation) with Honours

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DECLARATION

I hereby declare that all the work of this thesis entitled "AUGMENTED REALITY ADOPTION THROUGH METAVERSE AMONG GAMERS IN UTeM" is original done by myself and no portion of the work encompassed in this research project proposal has been submitted in support of any application for any other degree or qualification of this or any other institute or university of learning.

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DEDICATION

This research is lovingly dedicated to Almighty God for the Supremacy and Alhamdulillah for Everything in life were full with blessings. Especially to my parents, my siblings, my family, my housemate, my fellow friends and my supervisor Dr. Nusaibah Binti Mansor who have been my constant source of inspiration. They have given me their complete assistance and counsel during my research. Without their support and encouragement, it will be impossible to complete this research in a reasonable amount of time.

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ABSTRACT

Adoption among gamers using metaverse is still in a new phase for gamers in Malaysia especially in university such as Malaysia. The perception and information of the real world are enhanced through augmented reality. The purpose of this research is to study augmented reality adoption through metaverse. Gamers live a more linked and worldwide culture, with unprecedented access to information, people, and ideas. As a result, new ways to access media via the Internet and other technological forms of communication have evolved. Allowing players to immerse themselves in imaginary worlds and influence events within those realms is one ways AR games can provide meaningful experiences for gamers. Several studies have looked into the use of collaboration technologies like voice mail, email group assistance systems, and other services. AR uses visual components and characters to transform the real world into a virtual reality. Users can transfer value in the 3D immersive environment of Metaverse using cryptocurrencies, which are real-world currencies. The utilisation of a metaverse technology to change the way we work through teleconferencing and hybrid meetings was one of Meta's primary pitches with its rebranding. The Metaverse is a web of social, networked immersive environments on persistent multiuser platforms that are interconnected. It began as a web of virtual worlds with the ability for avatars to teleport between them.

Keyword: augmented reality, adoption, metaverse, gamers

ABSTRAK

Penerimaan dalam kalangan pemain menggunakan metaverse masih dalam fasa baharu untuk pemain di Malaysia. Persepsi dan maklumat tentang dunia sebenar dipertingkatkan melalui realiti tambahan. Tujuan penyelidikan ini adalah untuk mengkaji penggunaan realiti tambahan melalui metaverse. Pemain menjalani budaya yang lebih berkaitan dan mendunia, dengan akses kepada maklumat, orang dan idea yang belum pernah terjadi sebelumnya. Akibatnya, cara baharu untuk mengakses media melalui Internet dan bentuk komunikasi teknologi lain telah berkembang. Membenarkan pemain melibatkan diri dalam dunia khayalan dan mempengaruhi acara dalam alam tersebut ialah salah satu cara permainan AR boleh memberikan pengalaman yang bermakna untuk pemain. Beberapa kajian telah mengkaji penggunaan teknologi kerjasama seperti mel suara, sistem bantuan kumpulan e-mel dan perkhidmatan lain. AR menggunakan komponen visual dan watak untuk mengubah dunia sebenar menjadi realiti maya. Pengguna boleh memindahkan nilai dalam persekitaran imersif 3D Metaverse menggunakan mata wang kripto, yang merupakan mata wang dunia sebenar. Penggunaan teknologi metaverse untuk mengubah cara kami bekerja melalui telesidang dan mesyuarat hibrid merupakan salah satu nada utama Meta dengan penjenamaan semulanya. Metaverse ialah web persekitaran sosial yang mengasyikkan rangkaian pada platform berbilang pengguna berterusan yang saling berkaitan. Ia bermula sebagai web dunia maya dengan keupayaan untuk avatar untuk teleport antara mereka.

Kata kunci: realiti tambahan, penerimaan, metaverse, pemain alam maya

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LIST OF ABBREVIATIONS

ABBREVIATION	MEANING
AR	Augmented Reality
UTeM	Universiti Teknikal Malaysia Melaka
MLR	Multiple Linear Regression

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CHAPTER 1

INTRODUCTION

1.1 Introduction

The twenty-first century's digital revolution was marked by rapid advances in information and communication technologies. Gamers live a more linked and worldwide culture, with unprecedented access to information, people, and ideas. As a result, new ways to access media via the Internet and other technological forms of communication have evolved. Allowing players to immerse themselves in imaginary worlds and influence events within those realms is one ways AR games can provide meaningful experiences for gamers (Oliver et al., 2016).

Technologies that allow for electronic collaboration have become a significant part of daily life. Several studies have looked into the use of collaboration technologies like voice mail, email group assistance systems, and other services. Although collaborative technologies are not growing as quickly or as widely as planned, it appears that a new approach is required (Abu, Jabar and Yunus, 2015). Adoption among gamers using metaverse is still in a new phase for gamers in Malaysia. The perception and information of the real world are enhanced through augmented reality.

This knowledge is typically visual, but it can also be audible and haptic. Most AR apps allow users to see virtual images/models, for example, through smart glasses, headsets, video projectors, and mobile devices such as phones and tablets (Arnaldi et.al, 2018). Augmented reality plays an important role in learning player acceptance. The purpose of this research is to study augmented reality adoption through metaverse among games in UTeM. This chapter focuses on the background of study, problem statement, objectives and hypotheses of this research, conceptual framework, significance of study, limitations of study and definition of terms.

1.2 Background

AR uses visual components and characters to transform the real world into a virtual reality. It works with cell phone and other digital devices to provide users with immersive experiences while on the go (Leeway, 2022). Digital evidence of ownership, value transfer, digital collectability, and interoperability are all advantages. Users can transfer value in the 3D immersive environment of Metaverse using cryptocurrencies, which are real-world currencies. The major technologies driving Metaverse development are augmented reality (AR) and virtual reality (VR), which offer an immersive and thrilling 3D experience. The utilisation of 'metaverse' technology to change the way we work through teleconferencing and hybrid meetings was one of Meta's primary pitches with its rebranding.

Augmented reality (AR) is a technologically augmented version of the real world that is created by the use of digital visual elements, music, or other sensory stimulation. It's an increasing trend among businesses that deal with mobile computing and commercial apps. Augmented reality is evolving and becoming increasingly widely used in a variety of application. Metaverse is a persistent and immersive simulated world experienced in the first person by large groups of simultaneous users who share a strong sense of mutual presence. It can be entirely virtual (a virtual Metaverse) or be a rich virtual layer added to the real world (an augmented Metaverse).

The Metaverse is a web of social, networked immersive environments on persistent multiuser platforms that are interconnected. It allows for real-time embodied user communication and dynamic interactions with digital artefacts. It began as a web of virtual worlds with the ability for avatars to teleport between them (Modderman,2022). It's essentially an online virtual world where you can work, socialise, shop, and play because, you know, when Facebook, obviously one of the largest social media companies and companies in the United States, rebranded to metaverse, it caused a huge huge commotion if you look at the google search trends for the word metaverse (Sieber, 2022). The underlying AR and VR technologies provide a variety of issues for the Metaverse. Both technologies are persuasive and have the ability to affect users' thoughts, feelings, and behaviours (Slater et.al, 2020).

From text-based interactive games, virtual open worlds, Massively Multiplayer Online Game (MMOG), immersive virtual environments on smart phones and

wearables, to the current state of the metaverse, there have been four transitions. The appearance of new technologies, such as the birth of the Internet, 3D graphics, internet usage at scale, and hyper ledger, drives each transition (Haihan Duan et al, 2021). Social interactions take place in metaverse game worlds. For some, that means a story-driven adventure game like World of Warcraft from Activision Blizzard or the battle royale sensation Fortnite.

Others prefer world-building games such as Minecraft. The concept of social gaming is not new, although it predates the metaverse (Sherr, 2022). By superimposing digital data directly on real-world items or surroundings, AR allows individuals to process both physical and digital data at the same time, removing the need for mental bridges. The successful integration of new technology into the firm is known as technology adoption. Adoption entails more than simply putting technology to use (Altadonna, 2022). A Metaverse immersive simulated world that huge groups of people can encounter in the first person and share a strong sense of mutual presence (Modderman,2022).

1.3 Problem Statement

When an individual, corporation, or other agency uses new technology for the first time, this is known as technology adoption. Technology might refer to a new product, service, or managerial innovation in this context. The adoption of Augmented reality through modifies photos captured by a camera, most commonly a cell phone camera, to incorporate a digital shape into the "real-world" image. The "try with AR" tool, for example, allows customers to sample how particular things might look and fit in a specific area by using a smartphone camera and projecting a virtual representation of the product over the taken image in real-time. Following the adoption of augmented reality technology that led to one world in the metaverse and used by gamers. The metaverse is a hybrid of virtual reality, augmented reality, and video technology.

Nowadays, gamers are still in the process of recognising and understanding the function and application of Metaverse in games. Some people would go further and insist that a Metaverse must also be a general purposed world, and not application-

specific and that it includes rules of conduct and an economy. Whether add those limitations or not, the virtual Metaverse will be increasingly popular for gaming, entertainment, and socialising but will be limited to short-duration uses for most of the public. On the other hand, the augmented Metaverse will transform society, replacing phones and desktops as the central platform of our lives.

For a software programme, standards are akin to a universal language. It's one of the techniques to ensure its compatibility and contribution to the technology's general progress. This is the object that is currently being built for Augmented Reality. The application and acceptance of gamers on AR in the metaverse in UTeM is a question that needs to be resolved. The reason is simple: it is far too early. The reason is simple: it's too early. This technology is still in its infancy in Malaysia both in terms of hardware and software (although "technically" it already exists). This technology is what everyone especially gamers can adapt to it and accept in a good way. Due to the widespread general use of smartphones and tablets, as well as the growing availability of serious games, adults and even children can now learn a wide range of complex concepts in an interesting and easy way (Chao, 2019).

As the metaverse grows, in-game advertising will become more prevalent, with brands establishing branded presences in games like Fortnite and Roblox, which both feature metaverse components. Many companies are collaborating with game developers to create worlds in which their products can be seen. For example, Balenciaga created Afterworld: The Age of Tomorrow, a game in which players explore a futuristic world populated by characters dressed in Balenciaga clothing (Natashah, 2020).

1.4 Research Question

1. What are the factors affecting AR adoption among gamers?
2. What is the advantage of using AR through metaverse by gaming?
3. Can the usage of AR technologies in Metaverse give convenience to gamers

1.5 Research Objectives

1. To identify factor affecting AR adoption among gamers.
2. To analyse AR adoption relationship through metaverse among gamers in the gaming sector.
3. To determine the most significant adoption factor of AR through metaverse.

1.6 Scope and Limitation of Study

The scope of a study describes the depth to which the research area will be investigated and the parameters within the adoption of augmented reality in the gaming industry through a metaverse. This research involves the game industry and Malaysia has a major outsourcing player, with local game studios building a global reputation for developing original IP games and providing outsourced development for the biggest international publishers. The metaverse technology adoption qualities of augmented reality allow us to quickly incorporate virtual elements in the display modes that we have in real-time via smartphones and digital tablets. The E-sports Club, a small group with experience in playing games on a wide scale, was the subject of research at UTeM, the first technical university in Malaysia.

The question that was related to identifying the adoption of augmented reality among gamers in Malaysia was included in the scope of the research project. The researcher chose Malaysia as a study location because she wants to understand more about how Malaysian gamers are adopting augmented reality through a metaverse. The respondents in this survey will come from the target group, which comprises all Malaysian gamers because they are the ones who are most likely to be in this situation in relation to the study. The expected respondents ranged in age from 20 to 50 years old.

1.7 Summary

Consequently, the purpose of this study was to investigate the factors that influence gamers' adoption of augmented reality via metaverse in UTeM. This chapter covers the introduction, the study's background, the issue statement, the research

questions, the research objectives, and the scope. It was divided into three sections. Each chapter of this study has five sections: an introduction, a literature review, a methodology, a set of results and comments, and a conclusion and recommendations section. Previous researchers' results and data have highlighted the importance of this topic for future investigation. We'll go through everything in greater depth in the upcoming chapter

CHAPTER 2

LITERATURE REVIEW

2.1 Chapter Overview

In this chapter, the researcher will lay out all of the material needed for the reader to understand the study. Begin by commenting on the meaning of the title. Following that, a description of each framework provided by the researcher at the beginning of the study was provided. The whole framework for this research will be revealed at the end of this chapter.

2.2 Introduction

The concept of gamification has been notably used in corporate and became more useful to technology especially in this research. Simply described, the metaverse is a virtual interactive self-sufficient ecosystem of mobile networks, augmented reality, social media, gaming, virtual reality, e-commerce, cryptocurrency, and work environments that integrates immersive presence. This universe is being envisioned as the internet's future, with AR, VR, and physical worlds colliding in a single digital area. The gaming industry will be among the first to adopt augmented reality via metaverse, but it will also be the future for other industries such as education and training, tourism, and e-commerce. The core concept of augmented reality via metaverse upsets the current technological order by introducing new goods and services, as well as by establishing new organisational structures and exploiting new markets in a technological adoption revolution. It is then followed by a discussion of a theory used in this research. This chapter ended with summary of the chapter.

2.3 Literature Review

2.3.1 Augmented Reality

Augmented Reality (AR) is a technology that overlays a computer-generated image over a user's view of the actual world, creating a composite view. It's a real-time blend of game images and audio information that takes into account the user's surroundings. In particular, augmented reality is a powerful technique for describing models that require visualisation (Singhal et al., 2012). Beyond virtual worlds, augmented reality (AR) provides alternate experiences to human users in their physical surroundings, with the goal of improving our physical well-being. In theory, computer-generated virtual material can be used for a variety of purposes. Delivered through a variety of perceptual information pathways, audio, sights, olfaction, and haptics. The initial generation the aesthetic aspects of AR system frameworks are the only ones that are taken into account. Innovations aimed at organising and displaying digital data overlays are visual representations of our physical surroundings that are superimposed on top of them. There are various types of AR systems, including helmets (as seen in Marvel's Iron Man), smart glasses with a head-up display (such as Google Glass), projection, and specialised systems. Wearable (helmets, contact lenses) and non-wearable (smartphones, PCs) AR systems are also classified (Peddie, 2017). A software application that uses one or more separate hardware components must be installed on the equipment in order to augment the real world with augmentations. Marker-based (QR codes, barcodes) and marker-less (no markers) are the two primary types of AR software implementation (Kamphuis et. al, 2014).

2.3.2 Gamers

According to Cambridge Dictionary, a gamer is someone who enjoys playing computer games. Players are an important part of video games. They are the key players in the video game industry, pressuring developers and businesspeople to enhance the quality of their work. When people enjoy a video game, it can last for decades and sell millions of copies. The term "online game" refers to a game in which the user installs the game programme and connects to the game server firm via the internet. All of the game's characters are stored on the gaming company's servers. The