

Metaverse Strategy and Planning at The National Gallery

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ABSTRACT

This research examines the strategy and planning of metaverse in the National Gallery. The purpose of this research is to find out and learn the right strategy and planning in tourism, especially at the National Gallery tourist attraction. The research method used is the literature study method by collecting library data, reading and recording, and processing research materials. The results show that regarding the strategy of Augmented Reality (AR) and Virtual Reality (VR) technology that will be carried in the development of Metaverse and analysis of the use of information media, it can be summarized and concluded that Metaverse has considerable potential and opportunities as information media and the latest interactive educational media for the National Gallery.

Keywords: Metaverse, Augmented Reality (AR), Virtual Reality (VR), Strategy of Metaverse, Metaverse Planning, National Art Gallery

1. INTRODUCTION

Metaverse is a digital technology that is currently in the spotlight around the world. This is because Metaverse is able to create a 3D virtual environment by utilizing Augmented Reality (AR) and Virtual Reality (VR) technology, where users can interact in a virtual world with real sensations. Activities in Metaverse have great potential to generate profits, with business and monetization opportunities available. Implementation of the Metaverse can be done in various sectors, just as it is done in the real world [1]. In the field of tourism, for example, Metaverse can be developed to become one of the tools to introduce Indonesian tourism to the world. In recent years, the tourism sector is one of the sectors that has begun to be affected by the impact of scientific and technological developments. At the beginning of 2022, the introduction of metaverse tourism, metaverse is likened to creating a real-world (physical) experience in virtual space by utilizing technology [2].

Technology expert from Universitas Airlangga that Metaverse technology is currently a topic that is being widely discussed around the world. Metaverse is a digital technology that is able to create a 3D virtual world by utilizing Augmented Reality (AR) and Virtual Reality (VR) technology, where users can seemingly interact in a real virtual world. Various activities in Metaverse have considerable profit potential, business opportunities and monetization are very possible. The implementation of Metaverse can be done in various fields, just like in the real world. In the field of tourism, for example, Metaverse can be developed to become one of the tools to introduce Indonesian tourism to the world. In recent years, the tourism sector is one of the sectors that has begun to be affected by the impact of scientific and technological developments. At the beginning of 2022, the introduction of metaverse tourism, metaverse is likened to creating a real-world (physical) experience in virtual space by utilizing technology [3].

Indonesia National Gallery is part of the Ministry of Education and Culture, located in the center of the city on Jalan Medan Merdeka Timur No. 14, Central Jakarta. The gallery has been part of the Directorate General of Culture since the 1960s. When Wisma Seni Nasional was not yet realized, Prof. Dr. Fuad Hasan (when he was the Minister of Education and Culture) started the

renovation of the main building to become the Fine Arts Exhibition Building of the Ministry of Education and Culture, as a place for art activities and appreciation. Indonesia National Gallery takes care of the research, collection, care, exhibition, and publication of various types of artworks [4].

Indonesia National Gallery runs programs such as exhibitions, education, partnerships, and publications, which involve various parties from within and outside the country. These programs are accessible to the general public and policy makers. As of 2019, Indonesia National Gallery has collected and preserved 1,898 artworks. The collection includes works by Indonesian and foreign artists with various forms, media, techniques, and backgrounds of the artists as well as the specialty of their works. All works in the Indonesia National Gallery collection are sourced or collected from the National Museum, Directorate of Arts, Directorate General of Culture, and the National Gallery itself [4].

With the application of metaverse at the National Gallery, of course, it will help tourists to know the art and history of the artwork itself from the National Gallery without visiting the Gallery directly, this is also certainly one way of promotion for the Gallery to be more easily recognized again by foreign tourists, where with the aim of making it easier for tourists to visit without having to go to the location, this will also make it easier for tourists who will later visit to know the location of the place and the description of the gallery arts in the virtual world with the real world.

Based on the description above, this research aims to describe the potential use of Metaverse technology as a media that can facilitate and interactive as well as analyze AR and VR-based Metaverse media based on the perspective of the world of tourism. This research aims to find out how the estimated conditions that will occur if Metaverse can be applied to the National Gallery of Indonesia as well as the application of Metaverse media as an interactive educational media. This research is expected to be useful for several parties involved in the use of Metaverse, especially for "Metaverse Strategy and Planning at the National Gallery of Indonesia" in the tourism sector in welcoming the latest information and learning media and the role of designers facing the Metaverse era in the world of tourism.

Therefore, the purpose of this research is to analyze, i) How is the right strategy in planning Metaverse technology in Tourism. ii) How is the right strategy in planning Metaverse technology at the National Gallery.

2. LITERATURE REVIEW

2.1 *Metaverse Tourism*

Metaverse tourism is coupled with an understanding of the origin of the metaverse and the technologies associated with it. The term metaverse first appeared in the fictional novel *Snow Crash* written by Neal Stephenson [5]. According to [6] "the word Metaverse is a portmanteau of the prefix 'meta' (meaning 'outside') and the suffix 'verse' (an abbreviation for universe)". The term metaverse originally sits within virtual reality and its social media context, and is used interchangeably with virtual reality.

There is confusion about the difference between metaverse tourism and virtual tourism. In recent times, the metaverse has often been used for augmented reality and a mix of physical and virtual reality environments, as it has incorporated a broader scope of experience to include the physical world rather than just the largely relatable virtual environment. with 3D virtual worlds or non-physical elements/environments

[7]. As such, the metaverse can include outdoor experiences or mixed spaces that utilize virtual and physical environments.

To develop a clear understanding of metaverse tourism, it is necessary to define metaverse tourism and differentiate it from virtual tourism in the context of tourism and hospitality. For tourism and hospitality, defining metaverse tourism involves a metaverse environment that provides spatial experiences (or excursions) for tourists [8].

Interacting with the metaverse environment can enhance a traveler's experience with a travel destination or product. The metaverse environment can consist of the intersection of physical and virtual environments, generated by infrastructure, multi-sensory information, and metaverse technology. Therefore, the study defines metaverse tourism as tourism that provides products or experiences with a collective spatial environment enhanced by a multi-sensory convergence of physical and virtual environments [8].

2.2 *Tourism Strategy*

According to Rangkuti in [9], strategy is a company activity that aims to find a match between the company's internal forces and external forces (opportunities and threats) in the market. Its activities include closely monitoring competition, regulating inflation rates, business cycles, consumer advantages and expectations, and other factors that can identify opportunities and threats.

Regarding strategy according to Buchari Alma in [10] thesis, strategies are fundamental plans of action that are intended to accomplish the company's objectives.

A.Yoeti in [11] stated that in strategic planning of a tourist destination area, environmental analysis and resource analysis are carried out. The purpose of this analysis is none other than to find out and identify the main resources, especially regarding the strengths and weaknesses of organizations or institutions responsible for tourism development in these tourist destinations.

2.3 *Tourism Planning*

Planning is a process to achieve a goal. It starts from a very simple plan and becomes complex depending on the scale of the problem at hand [12]. Tourism planning was initially more oriented to urban and regional planning models because at that time (in the 1950s) tourism planning was initiated by the involvement of urban and regional planners [12]. Although the start is late compared to urban planning, the development of tourism planning today has developed very rapidly. Initially, the form of tourism planning was still concentrated on physical planning, such as the construction of hotels and resorts because it was influenced by the urban planning model. Currently, tourism planning has developed comprehensively by involving discussions on broader sectors [12].

The breadth of tourism planning is caused by the increasing complexity of dynamically changing elements of demand and supply. The market changes dynamically and affects the demand of tourists for new products. On the other hand, facilities and service providers always develop product offerings in order to remain competitive with each other. The dynamics of this change then make it important for tourism planning to be better prepared [13]. Today, tourism planning is not only

oriented towards travel destinations, but also people's welfare and environmental preservation [14].

Limitation of Research

Problem limitations are intended so that the problems to be discussed are more directed in accordance with the goals to be achieved and to keep the problem from being too widespread because considering the limitations that exist in the author. The limitations of the problem in this study are:

1. Conceptually: It is necessary for the author to limit the problem and scope so that this research is more focused. The author provides restrictions as follows: The problem of this research revolves around the study of strategies for the application of metaverse technology and planning the application of metaverse technology at the National Gallery.
2. Contextually; while contextually the author will conduct research in the National Gallery Environment, Central Jakarta

3. METHODS

The research method used in this article is a qualitative descriptive study with a literature research approach. According to Sugiyono in [15] qualitative descriptive research aims to provide an overview, explain, and explain in detail the problem under study by learning as much as possible about an event or object under study. At the data reduction stage, researchers examined the data that had been obtained and selected and summarized relevant information from various data sources such as journals, articles, books, written documents, electronic documents, and other sources [15]. Data summaries about the use of Metaverse and the development of tourism media are used as material in the process of presenting data. In the process of data reduction, the author chooses the main data and focuses on the important data, then looks for themes and patterns [16].

The theory used is the metaverse theory theorem: The metaverse must have a two-way demand [17]. Each type of metaverse will hand over responsibility to the managers of the National Gallery or tourism businesses and tourists, whatever the type, it can be in the form of commissions, giving the world time to flow or just making the world disappear. That's a definitive example of being able to be used in planning metaverse technology.

4. RESULTS AND DISCUSSION

4.1 Metaverse Technology in Tourism

The industrial revolution 4.0 became the initiator of the creation of the digitalization era which was not only limited to the use of computers, but further than that, the use of the internet which began massively in the early 2000s. Starting from big data that produces new knowledge, continued with cloud computing and autonomous which provides an overview of future technology, then the Internet of things (IoT) and data management, then Metaverse is the next biggest technology [18]. Metaverse is a virtual world-producing technology that can be explored without meeting in the same time and space in 3D through the combination of AR and VR technology. The application of Metaverse technology requires various preparations. In addition to security and cyber and data legal foundations, Indonesia is obliged to build an adequate level of digital literacy and infrastructure quality or support in welcoming the Metaverse era. With digital literacy and various careful preparations, all walks of life or Metaverse users.

4.2 Identify Metaverse Strategy and Planning at The National Gallery of Indonesia

Metaverse is planned to enter and be optimized in the tourism industry, where the immersive experience offered by the Metaverse can be packaged and become an opportunity for the tourism industry as a new experience for tourists that boils down to customer satisfaction. This potential can be seen from the application of Augmented Reality and Virtual Reality technology as information media, learning media and marketing in the Gallery. Given the concept of Metaverse technology itself integrates various technological elements, both AR and VR in one Metaverse platform. To find out more clearly how the concept of Metaverse technology works in the learning process, the author summarizes the results of research on the use of AR and VR technology.

Augmented reality (AR) is a technology that enriches real-life experiences with virtual data, often through various types of sensors such as auditory, olfactory, visual, haptic, and somatosensory. AR can be described as an integration between the real and virtual worlds, enabling real-time communication, and accurately capturing virtual and physical objects in three dimensions to be displayed on the screen [19]. The ubiquitous use of mobile devices has provided a great opportunity for the public to get familiar with AR applications in various fields. For galleries, the appeal of AR is clear – the technology allows multimedia content such as graphics, animations, and videos to be coated in a real environment, which provides a way for galleries to bring collections to life. AR adopts a different approach to physical space; It embeds digital inputs, virtual elements into the physical environment to enhance it. It spatially combines the physical with the virtual world [20].

Fine art works that are the artistic process of Indonesian and foreign artists, in the form of paintings, sketches, graphics, sculptures, ceramics, graphic design, illustration, photography, crafts, installation art and many more, which can be projected spatially mediated by devices, such as smartphones, tablets, glasses, contact lenses, or other transparent surfaces based on information published in an article in [21]. Galleries with a great many site visitors use only new mobile technology. Through augmented reality technology, art galleries can provide additional information about the exhibition or the art gallery itself; or as a guide through augmented reality technology in the form of cellular personalized through collections or gallery spaces. Living in the digital era, people are used to holding up smartphones and other mobile devices to take pictures. Thus, scanning AR objects with the device can easily fit into the gallery experience. AR apps allow gallery visitors to get information in a more convenient, efficient, and entertaining way. AR tools offer gallery visitors. Moreover, compared to the QR code scanning feature widely used in museums, which is usually a manual tracking system, the AR feature on the gallery app works with automatic image recognition to scan real-world objects.

Virtual Reality (VR) presents an alternative environment, distinctly separate from the physical world, which is entirely digitally generated. In VR, users experience a sense of immersion as if they are transported into a different realm, navigating it much like they would in real life. Enhanced by specialized multi-sensor equipment like immersion helmets, VR headsets, and omnidirectional treadmills, these experiences are intensified through natural modes of perception such as sight, sound, touch, movement, and interaction with virtual elements [22]. In some cases, some galleries generate great potential in the tourism industry, especially as information media and learning media. The use of VR technology as a medium of information, learning media and marketing, produces several benefits or advantages. Virtual reality is currently becoming a trend to help improve the quality of product performance and has made a huge difference to the history of human thought.

The use of virtual reality is widely used for marketing in the tourism industry. It is anticipated that VR will enhance tourism visits to destinations because a quality VR experience will evoke a sense of presence and flow for users. When individuals use VR at specific tourist destinations, they feel as if they are truly present there, fully immersed in the VR experience, and are inclined to forget about many other things [23]. The use of VR is closely related to the educational aspect of art gallery visits. For example, the gallery offers a VR-guided tour led by a scientific explorer.

Virtual reality is expected to increase visits to gallery tourist destinations. The rapid development of technology, many galleries have added elements of technology in it with the aim of increasing attractiveness. The reason for the establishment of Virtual-Reality in art galleries is because telematics expert Roy Suryo and also several associations of art galleries and museums in Indonesia to utilize technology as has been applied in France and Germany by applying 3D technology (three-dimensional) [24]. In addition, the learning process and the process of delivering information become more effective and efficient, the learning process becomes more comfortable without time and space limits.

Based on the description above, the author draws conclusions and argues that Augmented Reality technology and Virtual Reality technology as educational media provide great opportunities for art galleries. By combining AR technology with VR technology, Metaverse technology will create even greater potential for use in galleries. Although Metaverse technology is still in the introduction and development stage in several galleries in the world, Metaverse is very likely to become the most efficient information delivery media solution for the online teaching and learning process. Metaverse will provide a more unique and interesting learning experience, because tourists can understand information related to galleries or collections of fine art works by simulating and interacting in them thanks to AR, VR, and Motion Capture which is in the Metaverse.

4.3 Metaverse Strategy in Art Galleries

The data and information that have been collected become analysis material in drawing conclusions about the potential of Metaverse technology in the Gallery. The data analysis method used in this research article is by reducing data (data reduction / data condensation), presenting data (data display), and drawing conclusions (conclusions drawing / verification).

Based on the data and information obtained regarding the potential of Augmented Reality (AR) and Virtual Reality (VR) technology that will be carried out in the development of the Metaverse and analysis of the use of information media, the data can be summarized and concluded that the Metaverse has considerable potential as the latest interactive educational media.

The development of new interactive technologies is definitely having an impact on more traditional sciences and arts. This is more evident in the case of new interactive technologies that amaze the public at large, as is always the case with virtual reality [25]. The fusion of disciplines and the evolution of techniques has given rise to the need for better modes of communication. As a result, virtual reality interfaces, interaction techniques, and devices have improved greatly to provide more natural and defined modes of interaction and motivational elements [26]. Nevertheless, the prohibitive cost and inaccessibility of VR technology, coupled with issues of usability, staff training, operation, and maintenance, present important drawbacks to the use of VR in public spaces, making it difficult to include in dwindling museum or school budgets [27].

Despite concerns and objections regarding the suitability and efficacy of virtual reality education, there are still strong reasons to believe that the VR environment for society at large requires serious investigation and can provide powerful tools for learning. Informal educational institutions, such as museums, research, and cultural centers are in a better position to leverage such sophisticated systems and investigate their educational potential while effectively shaping the way they provide public entertainment and education [28]. In preparing for the Metaverse era, the government should also prepare regulations to reduce the risks that can occur in the use of Metaverse technology.

4.4 Metaverse Planning at The National Gallery of Indonesia

Art is part of culture and is a means used to express a sense of beauty from within the human soul. In addition to expressing a sense of beauty from within the human soul, art also has other functions. For example, myths serve to define norms for orderly behavior and pass on cultural

customs and values. In general, art can strengthen the bond of solidarity of a community In accordance with an article published in [29].

Art has been dramatically influenced by the powerful power of information communication technologies (ICTs) . This is followed by the rapid growth of on-line business (e-business) Two major phenomena that are growing rapidly in this global era, not only create "opportunities" for tourism industry players, especially art but also at the same time are a "threat" [30]. The function of technology with the tourism industry, especially the arts, in global developments has changed operational strategies and business practices that were previously considered established. It is even considered to have changed the power of competitiveness with respect to innovation, new innovation, and creativity [31].

In addition, technological developments also affect social aspects of various generations that trigger social change, from behavior to interaction. Today, technology can be found in all corners of the world with much easier affordability than ever before. As a result of this technological advancement, it is what brings civilization to know the digital world through internet technology [30]. The millennial generation living in the digital era is the most directly affected by technological developments. Especially from the impact on social and behavioral changes, such as the millennial generation's appreciation of art is now increasing based on the emergence of galleries. According to Jakarta Open Data, visitors to galleries and museums are increasing from year to year [32]. However, art and culture in the field of education still need to be improved. Though art is an important element for education. Children will easily learn through art and it is one of the factors of strengthening character.

Therefore, arts and culture play a crucial role in the life of Indonesian society, including in the tourism sector. Arts and culture have a significant impact on tourism strategies and advancements. For instance, art galleries are essential elements of the tourism sector. Seeing this, it is necessary to plan tourism metaverse technology at the National Gallery of Indonesia in order to create a function that offers an experiential experience for tourists from various generations which is certainly educative and rich in information about works of art. Especially during a pandemic like today, where all activities have been carried out online and virtually. This is the right moment in planning metaverse technology at the National Gallery of Indonesia, to increase tourism in the era of digitalization. As stated in TAP MPR Nomor IV / MPR / 1978 which states that tourism needs to be increased and needed to increase foreign exchange receipts, expand employment, and introduce culture [33].

Looking at the description that has been described, to realize this, the strategic steps needed are:

1. Team Building

In carrying out the program that has been made, a special team was created to carry out the optimization and revitalization of tourism in Indonesia. This team was formed by related parties involving various experts in their fields. Such as IT experts who will later design applications, or also experts from architects / artists as creators in this planning. As well as other experts related to this program. This team is responsible from the beginning of the program until the completion of the program. Its core task is to review, plan, implement, and evaluate the programs that have been made. The formation of this team took about six months.

2. Review of The National Gallery of Indonesia Attractions

This review was carried out to determine the state of the tourist spot. Things to review are objects owned by the National Gallery. After that, proceed with a review of public facilities and infrastructure, services, cleanliness and so on regarding this matter. This review can be done for one year after the team is formed.

3. Planning of The Revitalization of Tourist Destinations

After knowing the results of the review that has been carried out, the next step is revitalization planning. In this plan, it will be determined what needs to be improved from the tourist destination. This planning takes about six months to a year according to how much needs to be revitalized.

4. Virtual Reality and Markerless Based Application Development

After planning, the next step is to create Virtual Reality and Markerless Augmented Reality-based applications. This application consists of various latest features that can support the optimization and revitalization of tourism. It is estimated that the application will take six months to create.

5. Conduct Promotion and Socialization

Promotion and socialization are the first steps in the introduction of metaverse-based applications used in the tourism sector. Socialization is carried out during the first two months after the application is launched. The first step is through social media. Promotion through social media with the main target of Gen Z. That's because Gen Z always keeps up with the times, especially in terms of technology. It is hoped that with that, Gen Z can become one of the pioneers in promoting the applications used.

6. Program Evaluation

This evaluation is carried out to determine the shortcomings and advantages of the programs that have been implemented. With this evaluation, it is expected to be able to improve the quality of the programs that have been run. The estimated evaluation time is one month after all programs are implemented for three months.

By applying technologies such as Augmented Reality (AR) and Virtual Reality (VR) in the tourism sector, particularly at Galeri Nasional Indonesia, it can provide a unique experience for visitors and help preserve Indonesia's artistic and cultural heritage. In addition, the use of these technologies also provides an opportunity for foreign tourists to learn about Jakarta and Indonesian art without having to come to the physical location, through the use of the metaverse at Galeri Nasional Indonesia.

CONCLUSION

Based on the data that has been studied regarding the strategy of Augmented Reality (AR) and Virtual Reality (VR) technology that will be carried out in the development of the Metaverse and analysis of the use of information media, it can be summarized and concluded that the Metaverse has considerable potential as an information media and the latest interactive educational media.

The use of Metaverse technology will provide opportunities in the world of tourism which will certainly make it easier for tourists to visit without having to go to the destination tourist attraction, with the technology in the application of tourist activities this is also one way managers promote by extension in the world of technology in seeing existing opportunities. Augmented Reality technology and Virtual Reality technology as information media and educational media provide great opportunities for the National Gallery. By combining AR technology with VR technology, Metaverse technology will create even greater potential for use in galleries.

Although Metaverse technology is still in the introduction and development stage in several galleries in the world, Metaverse is very likely to become the most efficient information delivery media solution for the online teaching and learning process. Metaverse will provide a more unique and interesting travel and learning experience, because tourists can understand information related to galleries or collections of fine art works by simulating and interacting in them thanks to AR, VR, and Motion Capture technology in the Metaverse.

RECOMMENDATION

After conducting research, discussing and concluding the results of the study, the author proposed several recommendations at the end of this study. Based on the results of the discussion and conclusions, with the Metaverse planning strategy at the National Gallery, it is hoped that it can plan to develop metaverse technology as much as possible so that it can get the maximum as well. The existence of this development planning strategy is also expected to be able to create a unique tourist experience and increase the number of tourist visits in the tourist area. However, this planning strategy still has weaknesses in the form of a development strategy that is not comprehensive. This means that there are several aspects that require further research. So, a more representative further study is needed.

Then there are several recommendations that can be done by the next researcher, which are as follows.

1. Metaverse does not only bring opportunities and potential. In planning metaverse technology, there are also shortcomings containing threats and risks arising from the development of the use of metaverse technology, such as privacy and security implications, reducing the difference between reality and virtual. Further research should be able to examine and explore these shortcomings in various aspects, both economic, social, psychological and environmental, so that in the end a solution will be created and another comprehensive strategy will be formed in an effort to overcome these shortcomings. In addition, a development program can also be prepared that specifically discusses metaverse technology issues in Art Galleries or Museums. This section is urgent to be researched considering the rapid development of technology.
2. Based on the results of this study, the next researcher is expected to be able to develop planning and development strategies using other metaverse technologies or other metaverse levels. In addition to serving as a comparison, research that examines other technologies from the metaverse or other levels of the metaverse, which illustrates the market value of the metaverse will provide valuable information about the advantages and disadvantages of metaverse technology and its development and strategy.
3. Furthermore, further research can be done for metaverse development strategies other than Art Gallery or Museum, but for all types of tourism, such as hunting tourism, pilgrim tourism, marine tourism, rural tourism, and many more. Metaverse technology in tourism should be increasingly developed and cover all parts of the community.

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