Digital Space of The Prophet's Gallery Museum as a Representation of Revolution 5.0

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ABSTRACT

This research aims to explain the use of technology as a new exhibition medium for museums as an effort to digitize public spaces. The shift towards the 5.0 revolution represents the development from the era of Industry 4.0, bringing forth new challenges and opportunities, especially in the utilization of technology closely related to the design world to enhance accessibility and user experience across various fields including arts, culture, and heritage. One of the technology users in realizing digitization is the Museum Gallery of Rasulullah at the Grand Mosque Al Jabbar. The utilization of such technology can broaden access to enhance interactivity and enrich visitor experiences in understanding and appreciating cultural heritage and history. Several steps taken in the digitization of the Museum Gallery of Rasulullah as a representation of the 5.0 revolution aim to enhance visitor interactivity so that they can feel as if they are part of that history with immersive technology.The method used is a descriptive method with a qualitative approach. The findings of this research are some immersive implementations currently applied include Virtual Reality (VR) and Augmented Reality (AR) which have the ability to stimulate users' emotions, thus triggering strong physical and psychological sensations.

Keywords: Space Digital, Museum, Revolution 5.0, Immersive, Virtual Reality, dan Augmented Reality

1. INTRODUCTION

The industrial world is experiencing rapid development. Currently, we are entering the era of the Industrial Revolution 5.0, which is an upgrade of the Industrial Revolution 4.0. Revolution 5.0 promises increasingly sophisticated and modern industrial technology. According to Siagian (2023) Industrial Revolution 5.0 focuses more on the integration of advanced technology such as AI, IoT, and robotic technology with human expertise and innovation that can encourage the development of production systems that are more efficient, flexible, sustainable, and improve welfare.

The technological development of the 5.0 revolution is characterized by the integration of digital technology, automation of production processes, and high connectivity between machines, devices, and humans. The technology involves the application of the Internet of Things (IoT), artificial intelligence (AI), big data, cloud computing, and robotics in various industrial sectors.

One of the technology users in realizing digitalization is the Gallery Museum of Rasulullah Masjid Raya Al Jabbar. The utilization of technology can expand access to increase interactivity, and enrich the visitor experience in understanding and appreciating cultural and historical heritage. As for some of the steps taken in the digitization of the Rasulullah Gallery Museum as a representation of the 5.0 revolution, it aims to improve the visitor experience so that they can seem to be present as part of the history.

Ma'rodh Masjid Raya Al Jabbar is a museum that records traces of the journey of Islamic preaching in Tanah Pasundan, which cannot be separated from the Prophet's preaching journey centuries ago. The da'wah journey is presented through various media so that it becomes a creative and recreative educational tool. In the gallery, there are about 15 rooms with different themes that display the story of the development of Islam. This digitization allows visitors to access information at the touch of a screen, making it easier and faster to learn and understand the history of Islam.

To develop the existing technology, the Museum of Rasulullah at Al Jabbar Grand Mosque can be applied some digitization to improve accessibility, interactivity so that visitors can understand and appreciate cultural and historical heritage with Immersive technology that can create a more dynamic, inclusive and engaging experience for visitors, while still maintaining the values and integrity of the collections and stories conveyed. This is in line with the goal of Revolution 5.0 that according to Heri et all (2021) Society 5.0 is expected can create new value through advanced technological developments can reduce the gap between humans with economic problems to the front.

2. LITERATURE REVIEW

The Industrial Revolution 5.0 signifies a new era in leveraging digital technology to enhance various aspects of human life. Museums, as institutions that preserve and showcase cultural heritage, are significantly impacted by this revolution. Several studies have explored the application of digital technology in museums during the era of Revolution 5.0. According to Wang. X (2023), the world has entered a rapid phase of digital multimedia development with the advent of 21st-century digital technology. The public now appreciates the ongoing innovations and changes in interactive display technology, and museums

globally are adapting their exhibit techniques to these advancements. Digital multimedia has become an integral part of the Physical Ecosystem Museum's design, representing a collection of spiritual civilization, renowned science, culture, and symbols of the relationship between humans and nature. Through technology and technological systems, it offers visitors more diverse services.

According to Nugroho (2020) along with the rapid development of information technology, museums are places for non-formal education and educational tourist attractions, creative ideas and innovation activities using technological methods digital. In PP no. 66 of 2015 states that the Museum is an institution whose function is to protect, develop, utilize collections and inform the public. Referring to PP no. 66, it is clear that we as museum people must be able to Inform the collection to the public at all costs.

Other research indicates that digital museums can reach a broader audience and enhance information accessibility. For instance, Al-Bakri & Al-Kindi (2022) studied virtual museums as platforms for disseminating Islamic knowledge and culture in the digital age. Their research shows that virtual museums have the potential to reach a global audience and improve accessibility for people with disabilities.

Technologies developed in the 5.0 era, such as virtual reality (VR) and augmented reality (AR), play crucial roles in creating a more advanced digital museum environment. Elmqaddem (2019) noted that using VR in education and learning has multiple benefits, including enhancing learning, improving memory retention, and aiding decision-making in engaging and interactive settings. Riva et al. (2016) added that in VR, participants can experience embodiment, where the virtual body replaces the physical one, and incarnation, where the physical body is within a virtual environment. This changes cognitive processes, making users feel present in a virtual setting.

Augmented reality is also vital in museums, such as the Museum of the Apostle of Allah at the Al-Jabar Mosque. AR allows visitors to see the conditions of buildings from the time of the Apostle of Allah that may no longer exist today. Elmqaddem (2019) explained that AR applications enable tourists and museum-goers to learn about the history of locations or artworks by pointing their smartphone cameras at them.

Besides that, AR simplifies the reception and learning of information, making it applicable to various aspects, including digital museums. According to Kurubacak and Altinpulluk (2017), AR has numerous educational benefits, such as enjoyable classes, reduced cognitive load, increased motivation and interest in the subject matter, more opportunities for questioning, enhanced student interaction, new possibilities for solitary learning, concretizing abstract ideas, and improved success.

In summary, the digital space of the Rasulullah Museum Gallery represents Revolution 5.0. The gallery uses immersive technology to facilitate visitors' access to historical information from the time of the Apostle of Allah. This technology has transformed visitor activities, enabling them to use smartphones to view the conditions of buildings that no longer exist. Komianos (2020) noted that portable devices like smartphones, tablets, and smartwatches, which include built-in cameras and sensors, can interpret the real world and stimulate new interactions with museum collections and spaces.

3.   METHODOLOGY

The method used is a descriptive method with a qualitative approach. Descriptive qualitative research method is a research approach that uses real data or a description of the

situation experienced, which is then analyzed descriptively and identified based on relevant variables. McCusker and Gunaydin (2015) emphasize that qualitative research aims to understand how a community or individuals accept certain issues. This is different from quantitative research which focuses on measuring variables and generalizing results.

The quality of qualitative research is very important because it is the researcher who interprets the data collected. Researchers must have sufficient expertise and experience to be able to make accurate and objective interpretations. The descriptive analysis presented involves the arrangement and display techniques that will be identified and analyzed with a qualitative approach, which includes various aspects in creating the atmosphere and character of the space displayed in the museum.   The explanation of the problem will be carried out through literature study. This is due to obstacles in the field in the form of the temporary closure of the Rasullah Gallery to the public.

4.   DISCUSSION

According to Isfiaty (2023) In the museum exhibition space, collection objects act as visual media that are narrative in nature, connecting artists with stakeholders (audience/museum visitors). The presence of collection objects in the museum is a process that involves the museum, namely the curator, until finally it can be enjoyed by stakeholders. Along with the times, the museum exhibition room is currently equipped with technology that supports the convenience of stakeholders in enjoying information from the displayed collection objects.

In its application, digitization in the Rasulullah gallery museum uses Immersive technology which is an information system to create an experience that can fully immerse users into a digital environment or content, so that they feel as if they are really in it. According to Aagaard, A. (2019) Digitalization is a global megatrend today and companies in several industries are well aware of the disruptive power of this change. While the main goal of Immersive technology is to provide an immersive, enthralling, and emotionally engaging experience to museum visitors.

Figure 1 shows an example of the Immersive technology that has been implemented in the Gallery Museum of Rasulullah Masjid Al Jabbar.

Figure 1: Museum of the Prophet's Gallery Immersive Technology
Source: bisnis.com

Some of the Immersive applications that have currently been implemented at the Prophet's Gallery Museum are Virtual Reality (VR) and Augmented Reality (AR) where the technology has the ability to stimulate users' emotions so as to trigger strong physical and psychological sensations, such as a feeling of presence in an unreal place or active participation in a particular narrative or activity. The following is a brief explanation of the Immersive technology that has been implemented in the Gallery Museum of the Messenger of Allah:

4.1. Virtual Reality (VR)

Media information continues to grow with the presence of technology that increasingly brings convenience for humans to a message can be delivered properly, precisely, quickly and useful. Thuan (2018) stated that one of the technological developments in mobile that support information media is Virtual Reality (VR). Virtual Reality (VR) is a technology that can create interactive and immersive experiences for museum visitors. According to Richardson (2024) museums use virtual reality to enhance visitor experiences by providing immersive, interactive exhibits. VR allows for exploration of historical sites, distant cultures, and intricate details of artifacts that might be inaccessible in physical form. It also engages diverse audiences and can bring history and art to life in innovative ways. Virtual reality is popular in a variety of fields, including entertainment, education, design, architecture, medicine and training. In the entertainment industry, VR is used to create immersive experiences for video games, movies and virtual tours.

Figure 2 shows an illustration of Virtual Reality (VR) that can be applied to support learning including museum galleries. In education, VR is used as an interactive learning tool and allows students to explore complex concepts in a more engaging way. In the medical field, VR is used to simulate surgery or rehabilitation therapy.

Figure 2: Virtual Reality at masjid Al-Jabar (VR)
Source: cirebon.tribunnews.com (2024)

With the continuous development of technology, virtual reality continues to improve in graphic quality, screen resolution, responsiveness and also wider use in various industries. In museum digitization, virtual worlds are created so that visitors can feel and interact directly with objects and environments that look and sound like in the real world. Virtual reality experiences are usually equipped with VR headsets to generate auditory sensors that are synchronized with head mounted devices, such as Oculus Rift and HTC Vive so that museum visitors will feel as if they are really in a place represented in the virtual world according to certain objects or history.

Of course, this technology can evoke emotions so as to provide an interesting experience for museum visitors and facilitate understanding of history.

4.2.   Augmented Reality (AR)

Suzanna (2021) describes that Augmented Reality (AR) is becoming one of the technologies that are increasingly popular among the public because it has the ability to combine the real world with virtual elements. One of these immersive technologies can combine the real world with virtual elements in real-time where it can create experiences that enrich the existing reality by adding digital elements, such as images, sounds or 3D objects, into the user's real view.

In Figure 3 shows Augmented Reality technology that can illustrate an object by using a device as a cell phone or gadget as a tool.

Figure 3: Augmented Reality (AR) Technology

Source: public relations of the city of Bandung, (2023)

Augmented Reality technology can be applied in devices commonly used by the public such as smartphones, tablets or specialized AR headsets used to provide experiences using AR. Augmented Reality (AR) technology has shown great potential in enhancing the visitor experience in museums. The application of AR through applications on smartphones or tablets allows visitors to interact with artifacts and exhibits in a more interesting and

immersive way. When visitors highlight a particular artifact or exhibit with their device, additional information will appear on the screen in the form of text, images, or videos.

The technology in the Museum Gallery of Rasulallah can be used to display visual reconstructions of damaged or lost artifacts. For example, users can see what damaged ancient clothing looked like when it was new, or how the structure of a historical building might have looked in its original condition. In addition, museums can provide virtual tours for visitors using AR devices as if exploring and immersing themselves in history. By utilizing AR technology, museums can enhance their visitors' experience by offering more dynamic interactions, rich additional information, and an overall more immersive and Immersive experience.

5. CONCLUSION AND RECOMMENDATION

The finding has answered the reseach objective which are in the development of the digitalization of the museum of the Messenger of Allah Al Jabbar Mosque gallery, there are several things that need to be considered. However, because the main focus at this time is to improve technology that adapts to the 5.0 Revolution era, some existing immersive developments are carried out. The digitization of this gallery museum not only aims to create an experience that fully immerses visitors into a digital environment or content, but can be an example that educates and so that people can learn and even develop.

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