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APPLICATION OF INTERACTIVE MEDIA AND DIGITAL MEDIA FOR THE REVITALIZATION OF THE MUSEUM POS INDONESIA

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Abstract

Museum Pos Indonesia in Bandung has the potential to be a rich educational and historical tourism center, but faces challenges in attracting visitors, especially the younger generation, due to its conventional presentation and lack of utilization of digital technology. In the revitalization effort, an interactive technology-based design approach is seen as a solution to create a more engaging, informative, and relevant museum experience. This research applies a qualitative method with a Design Thinking approach, which includes five stages: empathize by conducting observations and interviews with visitors and managers, define to formulate the main problems of the museum, ideate in designing interactivity-based design solutions, prototype as a visualization of space and media, and test to test the effectiveness of the visitor experience. Digital interactive media such as touch screens, video mapping, augmented reality, and QR code-based audio systems are designed and adapted to visitor segmentation from children to adults. It is hoped that the results of this research will create a showroom atmosphere that is educative, inclusive and fun, and strengthen the position of Museum Pos Indonesia as a modern cultural institution that is able to adapt in the digital era.

Keywords: museum revitalization, interactive design, digital media, visual identity, ui/ux

INTRODUCTION

Museum Pos Indonesia is one of the cultural institutions that holds an important historical heritage related to the postal communication system in Indonesia. Established during the Dutch East Indies government in 1931 with the initial name Museum PTT (Post, Telegraph and Telephone), this museum witnesses the development of communication in the country. Its strategic location on Jalan Cilaki No. 73, Bandung, makes it part of the historical area that also houses the PTT Head Office. Since its inception, the museum has displayed a collection of domestic and foreign stamps, not only aesthetically valuable but also reflective of historical political, economic, and social dynamics. Although it was neglected during the Japanese occupation and World War II, efforts to preserve and reactivate the museum were made by the Board of Directors of Perum Pos dan Giro in 1980. As a result, on September 27, 1983, the Post and Giro Museum was inaugurated. Along with the institutional change to PT Pos Indonesia (Persero) in 1995, the name of the museum was changed to Museum Pos Indonesia.

As a public institution, Museum Pos Indonesia has a strategic role in educating the public about the history of communication and encouraging appreciation for the development of information technology. The museum is also expected to serve as an inclusive educational and recreational space for students, researchers, the general public, and foreign tourists. However, significant challenges arise in the midst of changes in people's information consumption patterns that are increasingly dependent on visual and digital media. Currently, museums face the problem of low visitor engagement, due to weak visual strategies, static collection displays, and the absence of an integrated design of spatial layout and narrative. The non-narrative arrangement and limited use of technology make the visitor experience less meaningful, informative and participatory.

The main problem faced was low visitor engagement due to weak visual strategies and lack of contextual display media. In addition, there is no integrated design that makes the exhibition space a vehicle for two-way interaction between visitors and historical collections. For this reason, a strategic approach is needed in revitalizing the museum, especially through the design of interactive display media that supports educational, representative and immersive functions. Museums must be able to adapt new approaches so that rich historical narratives can be conveyed in a more interesting and understandable manner.

The theoretical foundation in this research refers to the *design thinking* approach, which places the user at the center of the solution design process. This approach is considered relevant to address the actual needs of museum visitors through five stages: empathy, problem definition, ideation, prototyping, and evaluation. In addition, media interactivity theory is used to examine how digital technology can create a participatory experience, where visitors not only passively receive information, but also actively interact. The theory of narrative space is also the foundation in zoning the space based on the chronological and thematic order of Indonesian postal history, so that the narrative presented can form a clear and memorable flow of experience.

Furthermore, this revitalization is also closely related to the global development agenda contained in the Sustainable Development Goals (SDGs), especially goal 9: Industry, Innovation and Infrastructure. Through the application of interactive technologies such as touch screens, QR codes, augmented reality (AR), and zone-based audio systems, museums can expand access to information while improving the quality of public education. The development of interactive display systems not only makes museums more attractive, but also strengthens their role as centers of knowledge, cultural preservation, and sustainable educational innovation.

Thus, this research aims to design a revitalization strategy for Museum Pos Indonesia through the development of a digital interactive display media system based on spatial narrative and user needs. This effort is expected to improve the quality of

visitor experience and strengthen the museum's role as a relevant, adaptive, and sustainable historical education space in the digital era.

LITERATURE REVIEW

Museum revitalization and digitalization are adaptive strategies to improve the relevance and attractiveness of museums through a modern, technology-based approach. According to Santoso and Wicaksono (2022), revitalization aims to maintain historical value while addressing the needs of the digital generation through interactive media. On a global scale, the integration of technologies such as augmented reality (AR), virtual reality (VR), and interactive multimedia has been proven to increase the number of visits and the quality of museum education (Raharjo, Nugroho, & Sari, 2021).

Prasetyo et al. (2023) noted that visual digitization provides three main benefits: strengthening visitor attraction, facilitating access to collection information through QR codes and audio guides, and supporting inclusivity for people with disabilities. Thus, digitization is not just a trend, but a strategy to effectively maintain the educational function of museums.

Visual digitization at Museum Pos Indonesia is challenged by the lack of interactive elements in the presentation of the collection. Wahyudi et al. (2023) emphasized that conventional museums need digital transformation in order to attract the younger generation. Supriyanto and Lestari (2022) suggested approaches such as digitizing collections with AR and VR, interactive infographics, to QR code-based navigation and mobile-based guide applications. A case study by Sutanto, Prabowo, and Hidayat (2023) proved that these strategies can significantly increase visitation.

In visual communication design, branding serves as a means to build an institution's image and perception. Keller (2003) states that visual elements such as logos and colors play an important role in increasing perceptual value. Lestari, Samihardjo, and Sapanji (2023) added that a consistent visual identity strengthens the educational character of the museum. Cholil (2018) also emphasized that branding is an intangible asset that can create an emotional connection between institutions and audiences.

Conveying history through visual storytelling creates emotional closeness and strengthens visitors' memory (Holmes & Sealock, 2019). Cesário et al. (2021) showed that the integration of game elements in museum media can significantly increase interest in learning. Interactive media with intuitive instructions encourage active participation and inclusive experiences.

Embodied interaction allows for stronger sensory and emotional engagement. Centorrino et al. (2020) explain that gesture-based interfaces can increase visitors' understanding and closeness to historical content. This technology makes visitors not just passive spectators, but active participants in the exploration of the exhibition space.

Previous studies have demonstrated the effectiveness of museum revitalization through technology-based approaches and user experience. Santoso and Wicaksono (2022) examined the integration of digital media at Museum Benteng Vredeburg and found that interactive elements such as narrative projections and touch screens were able to significantly increase visitor engagement.

Raharjo, Nugroho, and Sari (2021) proved that the use of augmented reality (AR) in the Jakarta History Museum contributed to an increase in the number of visits by 40%, as well as enriching visitors' understanding of the contents of the collection. Meanwhile, Prasetyo, Widodo, and Nugroho (2023) emphasized the importance of digital visual design such as QR codes and interactive infographics in creating flexible and in-depth access to information.

In terms of branding, Lestari, Samihardjo, and Sapanji (2023) concluded that museums with a consistent visual identity have a stronger image and are easily recognized by visitors. Holmes and Sealock's (2019) research supports the use of visual storytelling in delivering history as a way to increase emotional closeness and memorability.

In addition, the embodied interaction approach studied by Centorrino et al. (2020) proved that gesture-based technology enhances multisensory experiences in exhibition spaces. These findings form the basis for designing a revitalization strategy for Museum Pos Indonesia that focuses on visual digitization, interactivity, and participatory narrative experiences.

RESEARCH METHOD

This research uses a qualitative approach with the framework of the *Design Thinking* method as the basis for exploring, designing, and evaluating solutions to the problems faced by Museum Pos Indonesia. This approach was chosen because it is *user-centered*, iterative, and able to respond to the complexity of the problem through a creative and participatory process. The five main stages in this method include: *Empathize*, *Define*, *Ideate*, *Prototype*, and *Test*.

At the *Empathize* stage, researchers made direct observations of the museum's existing conditions, observing the flow of visits, collection displays, and visitor interactions with information media. In-depth interviews were also conducted with the management and operational staff, while questionnaires were distributed to visitors with various backgrounds. The data collected showed that visitors have difficulty in understanding the flow of historical narratives, feel less actively involved with the collection, and assess the lack of innovation in information delivery.

The *Define* stage was used to formulate the structural core of the problem. Three main issues were identified: (1) weak collection display strategies, (2) the absence of a thematic and chronological space narration system, and (3) the absence of a consistent

visual approach in shaping the identity of the space. These three issues became the basis for formulating the actual design needs.

In the *Ideate* stage, creative solutions were designed based on user needs and literature references. Some of the main ideas included the implementation of a zoning system based on a timeline of Indonesian postal history, the use of technologies such as QR codes and *augmented reality* (AR) for interactive information delivery, and the strengthening of visual communication design elements. These ideas were selected based on considerations of educational effectiveness, visual appeal, and possible technical integration.

The Prototype stage is realized through spatial design, interactive display sketches, AR usage simulation, and digital-based navigation system design. This prototype is not only conceptual, but also limitedly tested in the *Test* stage through user simulation. Feedback was collected to assess the effectiveness of visual communication, comfort of space flow, and media interactivity.

To strengthen the validity and contextuality of the strategy, this research is also complemented by SWOT analysis as an evaluative tool for the position and potential of Museum Pos Indonesia. SWOT analysis is used to assess internal (Strengths and Weaknesses) and external (Opportunities and Threats) factors that influence the success of museum revitalization.

According to Prasetyo and Nurcahyo (2019), SWOT provides a comprehensive picture of the real conditions that can be used as the basis for preparing development strategies. Meanwhile, Damayanti and Mahardika (2021) explained that the results of SWOT analysis can be linked strategically: such as utilizing strengths to seize opportunities (SO strategy), improving weaknesses to capture opportunities (WO strategy), using strengths to deal with threats (ST strategy), and minimizing the impact of weaknesses and threats (WT strategy).

Thus, the combination of the *Design Thinking* approach and SWOT analysis in this research becomes a strategic foundation in designing museum revitalization that is adaptive, based on user needs, and in line with today's digital socio-cultural dynamics.

RESULT AND DISCUSSION

Findings

At the Empathize stage, an empathic approach is taken to deeply understand the needs, obstacles, and expectations of users towards Museum Pos Indonesia as a public education space. Data collection was carried out through direct observation of the museum's existing conditions, semi-structured interviews with various stakeholders, and distributing questionnaires to visitors.

Figure1 . Observation Documentation of Museum Pos Indonesia
Source: Asmara, 2024

The observation shows that although Museum Pos Indonesia has a rich collection that includes domestic and international stamps, postal communication tools, and historical documentation, the presentation of the collection is static and lacks interaction. Vitrines and information panels are dominated by long texts, without the support of interactive elements or narrative technology that can attract the younger generation.

Figure2 . Interview Documentation of Managers and Visitors of Museum Pos Indonesia

An interview with Mr. Zamzam, as the head of the museum management, revealed that the museum acts as a center for preserving the history of the post and a place for public education, especially students. The museum is managed by a small team and relies on temporary support from student interns and the tourism community. He admits that budget constraints and concerns over device maintenance have hindered the implementation of digital technology, although revitalization plans and collaboration with outside parties are being pursued.

From a visitor perspective, interviews with students of SDN 197 Karangtaruna indicated a preference for visual media that is fun and easy to understand. They found the Geology Museum to be more visually appealing than the Pos Museum, which was

perceived as less lively and interactive. This suggests the need for a more adaptive visual and narrative approach for elementary school-aged audiences.

The opinions of student interns, such as Malvino and Khadijah, reinforce the finding that the museum still faces challenges in terms of spatial organization and narrative flow. The lack of signage, limited accessibility, and absence of interactive media are considered to make the visiting experience passive. They proposed redesigning the display system with media such as touch screens, QR codes, or sensor-based digital installations to increase visitor participation.

An interview with a general visitor, Nur Dian, highlighted that while the museum's educational content is strong, its delivery is not yet able to compete with other museums in Bandung. She recommended the integration of digital technologies such as educational videos and trend-based thematic exhibitions, as well as improved facilities such as disability access and tour guide services.

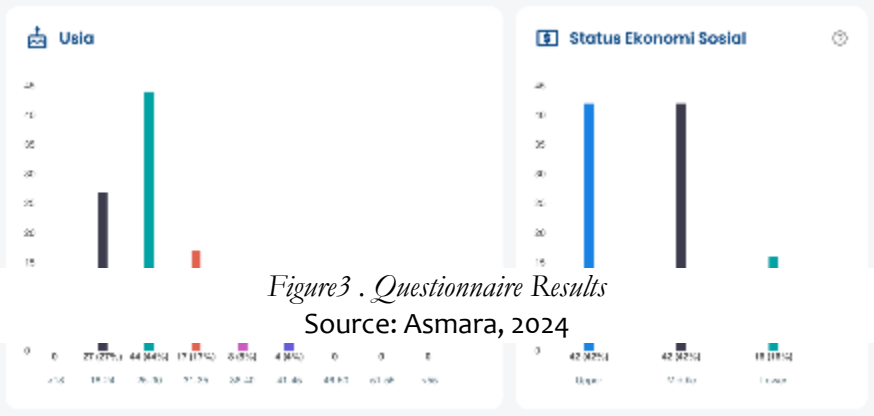

Figure3 . Questionnaire Results
Source: Asmara, 2024

To gain a deeper understanding of visitors' needs and expectations of Museum Pos Indonesia, researchers distributed an online questionnaire designed using Likert scales and semantic differential techniques. The survey received responses from a wide range of people, dominated by individuals aged between 18 and 30 years old from a number of regions in West Java. Respondents consisted of both men and women, with diverse educational backgrounds and professions, ranging from students to working professionals. Most of them also actively use social media, especially Instagram and Facebook, which indicates a high level of familiarity with digital content.

Data analysis shows that most respondents expressed a high need for increased interactivity and utilization of the latest technology in the museum. Technologies such as touch screens and augmented reality (AR) are seen as important tools to enrich the visitor experience, as evidenced by the high average score (5 out of 5) on these indicators. Respondents expect museums to present more dynamic and communicative media in delivering historical content.

In addition, physical facilities such as lighting, furniture, and cleanliness of spaces were rated quite favorably, indicating that the basic infrastructure has met visitors'

expectations in general. However, 70% of respondents revealed that while the museum has provided a meaningful educational and recreational experience, there is still room for improvement. In particular, they highlighted the unstructured flow of the space and the lack of digital display media that can reinforce the narrative of the collection.

While the visual identity of the museum is considered to have strong potential, respondents emphasized the importance of applying a consistent and attractive design to the display system and visual information elements. This was seen as important to create a more unified and comprehensible visitor experience.

Overall, the results of the questionnaire provide significant input for the design direction of revitalization, especially in strengthening visual aspects, improving interactive technology, and managing spaces based on the needs of today's digital visitors.

In general, the data obtained at this stage shows that Museum Pos Indonesia has great potential as an education-based historical institution. However, the lack of a structured spatial narrative system, lack of interactive media, and limited facilities make the visitor experience not optimal. These findings became an important basis in formulating the main problems and design strategies in the next stage.

At the *Define* stage, the main problems were formulated to include: (1) the absence of a thematic and sequential spatial narrative system; (2) the lack of display media innovation that can strengthen educational appeal; and (3) the absence of visual strategies and digital media to deliver immersive content. Applying SWOT analysis was carried out to clarify the internal and external conditions of the museum as a basis for preparing the design strategy for the revitalization of Museum Pos Indonesia.

Table1 . SWOT Analysis

Source: Asmara, 2025

Strengths-Weakness	**Weakness-Opportunities**
Museum Pos Indonesia has a number of advantages, including a strategic location in the center of Bandung, a rich and historic collection of artifacts, and a unique thematic identity as a communication museum. However, this potential has not been fully optimized due to weaknesses in the presentation of showrooms that lack narrative, lack of interactive media, and limitations in the use of digital technology. To maximize these strengths, a visitor experience-based space redesign is needed by integrating interactive elements such as *touchscreen*, *augmented reality*, and QR code-based audio-visual systems that support cross-age learning.	Threats to the museum's sustainability include low interest in visiting from urban communities, budget constraints, and a weak competitive position compared to other more modern museums. However, opportunities for technology integration, cooperation with the private sector, and the development of digital educational content can be a means to improve the image of museums as relevant centers of historical knowledge in the digital age. A user-centered approach that focuses on convenience, participation, and interactivity will help museums rebuild their appeal and increase visitor engagement.

Threats - Opportunities	Strengths - Threats
Museums face challenges such as low visitor interest, limited funding, and weak competitiveness with more modern institutions. However, opportunities through technology integration, collaboration with the private sector, and the development of digital educational content can be utilized. A user-centered design approach encourages interaction, comfort, and participation, allowing museums to revitalize their appeal and relevance.	Despite its strengths in terms of collections and institutional historical value, Museum Pos Indonesia still faces serious challenges such as program stagnation, lack of visual innovation, and limited access to financing. Therefore, internal strengths should be directed towards forming long-term partnerships, developing a stronger branding strategy, and creating curatorial programs based on visual narratives, in order to maintain the museum's sustainability and competitiveness amidst changing audience preferences.

The *ideate* phase is a process of exploring ideas that aims to formulate creative solutions based on the problems that have been identified. In this phase, design ideas were developed based on user needs found through previous observation and analysis. The main focus in developing ideas is to present a more interactive, informative, and engaging museum experience, especially through the utilization of digital technology and communicative visual approaches. All ideas were designed with the comfort, engagement, and behavioral patterns of visitors from various age segments in mind.

These ideas are then realized in the form of initial visual sketches that serve as a conceptual representation of the transformation of space and media in Museum Pos Indonesia.

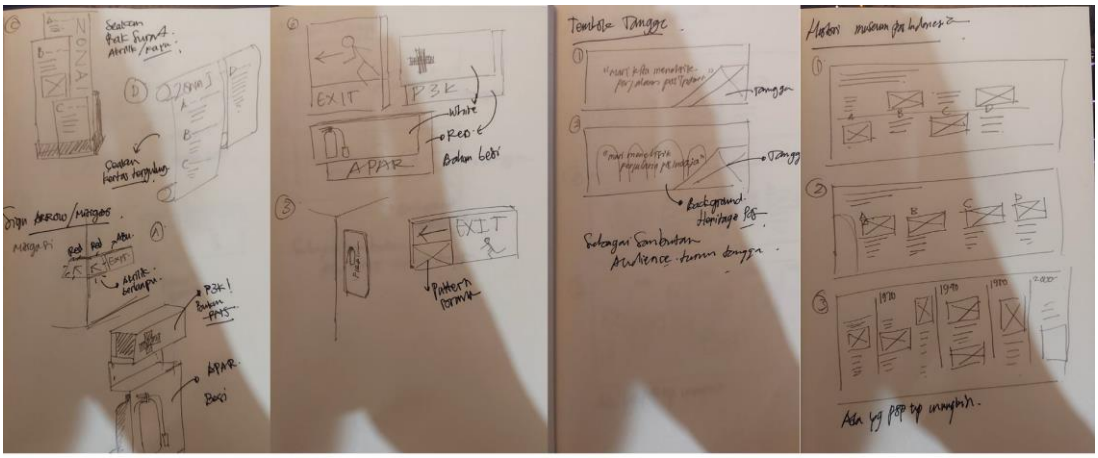

Figure4 . Layout Sketch
Source: Asmara, 2025

The sketches reflect the space division plan based on the historical flow of postal communication, from the royal period to the digital era, as well as the proposed integration of technologies such as *touchscreen*, *QR code*, *augmented reality*, and *video mapping* as auxiliary media that strengthen the historical narrative. In addition to the

exhibition space, activity spaces such as a philatelic education area, letter delivery simulation, and a postal-themed *photobooth* are also designed as a means of visitor interaction and documentation.

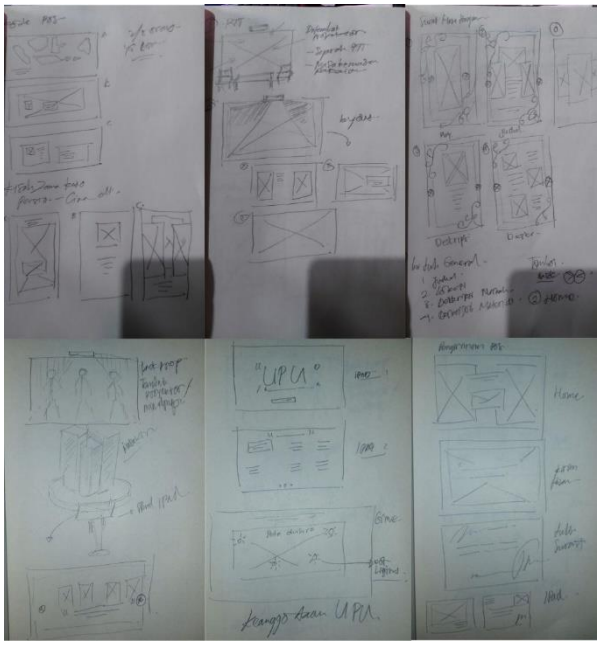

Figure5 . Layout Sketch
Source: Asmara, 2025

The visualization of these sketches not only aims to illustrate the physical form of the design, but also to test the effectiveness of the user interaction flow, the placement of display media, and the clarity of visual information. Through the *low-fidelity prototyping* approach, the design can be flexibly developed and adapted to user feedback before being further tested in the next stage. Thus, this stage plays an important role in connecting initial findings with real solutions that are applicable and contextualized.

The *prototype* stage is the phase of transforming the design into a tangible form from the results of the ideation process that has been developed previously, with the aim of simulating the spatial experience and visitor interaction in the form of an initial design that can be tested. At this stage, various design elements begin to be visualized systematically, including thematic zoning, media layout, visitor circulation, and digital technology integration. Prototypes not only serve as visual aids, but can also serve as a medium to identify potential problems, evaluate design effectiveness, and refine solutions before the actual implementation stage.

In the context of the revitalization of Museum Pos Indonesia, the prototype was developed based on the division of four main thematic zones that represent the historical journey of postal communication from the past to the future.

Figure6 . Print and Digital Media Protoype Zone 1
Source: Asmara, 2025

Figure7 . Prototype of Digital and Conventional Royal Mail
lSource: Asmara, 2025

Zone 1 focuses on the narrative of the early communication system in the archipelago, especially correspondence during the royal period. In this zone, the prototype is in the form of an interactive *touchscreen* that displays ancient letters from various regions, accompanied by illustrations of writing media, characters, and maps of the distribution of kingdoms. Video mapping visualization is also designed to be displayed on the original table and chair property of the PTT era as a form of strengthening the historical narrative. A rotating block media with a brief description behind it is also presented as an alternative to conventional media that remains communicative.

Figure8 . Prototype Backdrop, Conventional and Digital Interactive Media
Source: Asmara, 2025

Zone 2 showcases the heyday of the postal service and the development of postal workers' transportation and attire. The prototype in this zone consisted of *a projection mapping* system depicting the evolution of postal clothing and vehicles over time, controlled through a connected iPad device. *Touchscreen* media was also set up on to visually and interactively display the history of the postal code. In addition, the prototype included an interactive world map connected to a tablet device; when visitors selected a country, the map would light up at that location point and display information on the stamp history of that region.

Figure9 . Print Media Prototype
Source: Asmara, 2025

Figure10 . Digital and Audio Visual Interaction Media Prototype
Source: Asmara, 2025

Zone 3 emphasizes philately and postal technology. The prototype was developed in the form of a *touchscreen* catalog of rare stamps, equipped with a zoom feature and narrative explanation. Visitors can also try a digital mailing simulation through an iPad device, which is connected to a projection screen to visualize the postal logistics flow. The aim of the prototype is to create an active, reflective and informative experience, especially for young visitors and students.

Figure11 . LED Digital Media Prototype
Source: Asmara, 2025

Figure12 . Print Media Prototype
Source: Asmara, 2025

Zone 4 is a futuristic zone that depicts the future direction of communication. The main prototype is a digital hallway featuring animations of modern communication, from electronic mail to future network-based communication technologies. Lighting effects, ambient sound and narration panels are simulated in the form of visual sketches and animation *storyboards*. At the end of the hallway, there is an interaction point in the

form of a *feedback post box* where visitors write their impressions, hopes, or personal messages that can be inserted into the box as part of the visitor's final participation.

The *testing* stage is carried out to evaluate the prototypes that have been developed in the process of designing the revitalization of Museum Pos Indonesia. This evaluation aims to determine the extent to which the proposed design solution is able to improve the quality of the visitor experience, both educationally, visually, and interactively. Testing was carried out on a limited basis through visual simulation methods, design presentations, and interviews with potential users consisting of students, university students, general visitors, and representatives of museum managers.

The trial results show that the majority of respondents responded positively to the integration of digital technology into the exhibition space, such as the use of *touchscreen*, *QR code*, *video mapping*, and *augmented reality*. These media are considered capable of conveying historical information in a more interesting and understandable manner than conventional approaches. In addition, the spatial flow system designed based on narrative zoning is considered to help visitors follow the historical sequence logically and not confusingly. The *user-centered design* concept applied to the prototype is considered successful in providing a more personalized, informative, and enjoyable visiting experience.

Some feedback was also provided on technical aspects, such as the need to simplify the digital interface to make it more user-friendly, especially for children and elderly visitors. It was also suggested that some visual elements be complemented with voice narration or animation to make them more vivid. Overall, however, the proposed design is considered capable of strengthening the museum's appeal and creating meaningful interactions between visitors and the historical materials displayed.

Analysis/Discussion

This study highlights the revitalization of Museum Pos Indonesia through a user-centered and digitally integrated design approach. The transformation shifts the museum from a static collection space to an interactive, participatory, and educational environment. The redesigned exhibition layout, structured chronologically around Indonesia’s postal history, significantly enhances visitor experience. Thematic zones guide narrative flow and support the integration of digital media such as touch screens, video mapping, QR code audio guides, and augmented reality (AR). These interactive elements improve engagement, making history more accessible, immersive, and meaningful for diverse audiences, especially younger, digitally native visitors.

The design concept is in line with the museum experience theory developed by Falk and Dierking, which emphasizes the importance of integration between personal, social, and physical aspects in creating effective educational spaces. Within this framework, the museum is no longer a place to "deliver information", but rather an

active learning space that builds emotional and cognitive connections between visitors and the historical materials on display.[1]

Furthermore, the experiential design theory proposed by Simonsen et al . reinforces the urgency of a situated approach to space, which is a space that is able to respond to the background and personal experience of the user.[2] In the context of museums, this situated experience is important to encourage deep intellectual engagement and a strong emotional connection to history, especially for young digital-native generations who are accustomed to visual and interactive approaches.

The application of design thinking methodology is the main framework in this research. Its five stages-Empathize, Define, Ideate, Prototype, and Test-were implemented to accommodate the complexity of the problem and create a solution based on the real needs of visitors. At the Empathize stage, field observations, interviews with the head of the museum management, school-age visitors, student interns, and the general public were conducted. The findings from these interviews showed that visitors had difficulty following the flow of historical narratives, felt a lack of interactivity, and did not find an emotional connection with the museum content.

Respondents from the student age group suggested that similar museums such as Museum Geologi are more attractive due to their vibrant visual displays and the use of interactive elements. Meanwhile, student interns and adult visitors stated that Museum Pos Indonesia has a strong collection and high historical value, but lacks an informative visual delivery and spatial narrative system. The absence of a wayfinding system and the lack of informative signage are major obstacles in building a comfortable spatial experience.

Interviews with museum managers made it clear that limited human resources and budget are the main challenges in the museum renewal process. In its current state, the management team consists of only a few people with operational support from student interns or additional staff during exhibitions. The manager expressed openness to external cooperation, but there is no structured strategy to collaborate with universities, creative communities, or the private sector in content and technology development.

At the Define stage, researchers formulated three main issues that became the basis of the design strategy: (1) the uncommunicative visual appearance of the collection; (2) the absence of a timeline-based spatial narrative system; and (3) the absence of a consistent visual identity in the museum space. These issues were further developed at the Ideate stage, resulting in several potential solutions, such as zoning based on the narrative history of the post, development of interactive display media based on digital technology, and consistent visual identity design on information panels, signage, and navigation systems.

The design solution was then realized in prototype form and tested on visitors with various backgrounds. The tests showed that the AR and QR code-based design

allowed visitors to understand the historical context in a more active and fun way. However, visitors also criticized the digital interface for being too complicated for children and elderly users. The feedback emphasized the importance of applying universal design principles in the museum's digital interface system.

Data from the online questionnaire shows strong support for the digitization initiative. The majority of respondents from the 18-30 age group believe that museums need to be more interactive and utilize technology such as touch screens, AR, and consistent visual design to attract visitors. Around 70% of respondents also considered that the museum's visual identity is quite strong, but still not optimal in terms of implementation in the exhibition space and branding strategy. This data reinforces the findings from interviews and field observations that visitors are looking for a communicative, informative and visual museum experience.

SWOT mapping carried out in the design process supports a more systematic design development strategy. Museum Pos Indonesia has strengths in the historical value of the collection, the strategic position of the building, and the relevance of the theme of communication history in the context of national education. Its weaknesses lie in the limited interactive facilities, the absence of a structural spatial narrative, and the minimal utilization of digital media. Opportunities arise from global museum digitization trends, the availability of local creative communities, and the interest of educational institutions in curriculum-based cooperation. Meanwhile, threats come from declining visitation rates and competition with museums that have already implemented digital strategies.

Prasetyo and Nurcahyo emphasize that SWOT is not just a mapping tool, but a means of devising design strategies that are responsive to real and potential conditions.[3] The results of this SWOT show that by utilizing its strengths and establishing external partnerships, the museum can increase its attractiveness without having to wait for large budget support from internal institutions.

These findings open up great opportunities to develop Museum Pos Indonesia as a historical educational space that not only stores artifacts, but also conveys stories through interactive digital media. Future development can focus on creating a timeline-based online catalog, a mobile application-based digital visit guide, and a gamification-based educational approach to increase active visitor participation.

Furthermore, potential collaborations with universities, design studios, and technology developers open up synergy pathways to create more contextualized and innovative content. Budiman and Wijaya stated that strengthening visual communication and systemic design are key strategies in shaping the image of a professional and competitive museum.[4] Thus, strengthening branding and redesigning museum displays are crucial steps to reach a wider audience and form a cohesive experience.

Overall, the revitalization of Museum Pos Indonesia through an interactive design approach and digital technology is an answer to the needs of the times . This strategy has proven that museums can be learning spaces that are not only fun and visually appealing, but also able to convey historical values in a format that suits the characteristics of today's generation. Based on user engagement and the use of narrative technology, museums are not only transformed physically, but also in terms of meaning and social function.

Such a strategy is replicable and potentially impactful for other museums in Indonesia in Indonesia that face similar challenges in terms of visual appeal, content relevance, and visitor engagement. By putting users at the center of design and strengthening cross-sector collaboration, museums can become adaptive, inclusive and sustainable cultural institutions in the digital era.

Footnotes

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CONCLUSION

The results of this research prove that an interactive technology-based approach and user experience-focused design can transform Museum Pos Indonesia into a more inclusive, educative and relevant cultural institution. By integrating digital media such as touch screens, projection mapping, augmented reality, and QR code-based information systems, the museum is no longer just a place to store historical artifacts, but also a lively and participatory learning space.

The revitalization process is carried out through a Design Thinking approach that includes empathy with users, problem definition, exploration of design solutions, prototyping, and evaluation through trials. The proposed design, structured into four thematic zones, has succeeded in enhancing visitor engagement, strengthening understanding of the historical narrative of Indonesian posts, and creating spaces that support active interaction and participation.

The application of user-centered design has led to significant changes, not only in terms of the appearance and function of the museum space, but also in rebuilding the institution's image and increasing its relevance in the modern digital era. The proposed design has considered the needs of all ages, paid attention to accessibility aspects, and

opened up opportunities for integration between education, technology, and cultural identity.

In the future, this research opens up opportunities for further exploration, including the development of digital catalog systems, mobile-based visit guide applications, and gamification strategies for historical education. In addition, a similar approach can be used as a reference in designing other thematic museums in Indonesia, to strengthen the museum's function as an adaptive and fun cultural space.

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