

The Magic of Digital Art: A New Experience With Virtual Reality

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Abstract

The interaction between art and technology has significantly transformed the modes of artistic production, presentation, and perception with the advancement of digital technologies. The incorporation of tools such as Virtual Reality (VR), Augmented Reality (AR), and interactive interfaces into artistic practices has redefined the relationship between the artwork and the viewer, enabling the audience to take on a more active role in the experiential process. Due to its multisensory and interactive nature, digital art distinguishes itself from traditional exhibition methods, with experiences evolving into more individualized and participant-centered forms. These changes have influenced not only the presentation of artworks but also the fields of art management and curatorial practices. This study examines the impact of this transformation brought about by digital technologies on exhibition methods, art management, and curatorial approaches. The evolving roles of art managers and curators in the processes of preparing and presenting artworks in digital environments are becoming increasingly inclusive and technologically integrated, thanks to the advantages provided by digital tools. The analysis of the Sanxingdui Museum, located in China's Sichuan province, serves as a concrete example demonstrating the influence of digital museology on contemporary art management practices. The museum's virtual reality-supported excavation experience enables visitors to engage directly and physically with the past. As a result of this interaction, users gain more lasting and impactful experiences by individualizing their learning processes. Additionally, the development of new and creative methods for the transmission of cultural heritage has enhanced the ways in which visitors connect with historical content. In this context, the Sanxingdui Museum is evaluated as a case that redefines both user experience and the understanding of art management through the implementation of digital museology. This study aims to explore the transformations within curatorship and art management brought about by the opportunities offered by digital art and to reveal how these transformations are reflected in digital applications.

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1. Introduction

The rapid development and proliferation of digital technologies have brought upon profound changes in the world of art. This process made it possible for the art management practices to transform and leap further. The global events of the last few years have accelerated the evolution of digitalization and now, the art organizations benefit from the use of technology. Similarly, the art organizations, which lie at the core of cultural tourism, must interact and communicate with the visitors in a way that is compatible with the digital world we live in. Technological transformations as such allowed the digital art to rise in the field of art management. For Christiane Paul (2020), the digital art in its simplest definition is ‘the form of art, which was predominantly created in the digital realm, can be computed, stored and distributed and uses all these technologies as a tool (p. 2.04).’ The genre of digital art, despite its ‘super materialistic’ quality, leaves an impression as strong as the extent of physical experience with the way it interacts with the viewer (Paul, 2020). In this regard, in the context of today’s art management, both the methods of display and the viewer interaction of the digital art has led to various discourses.

Having evolved through time and technology, the methods of display have transformed the viewer’s role as a passive observer into a more hands-on and interactive one in how the digital art is experienced, by utilizing the virtual, augmented or karma reality technologies (Tanrıku & Karagöl, 2021). Specifically, Virtual Reality (VR) allows the viewer to move to a digital setting and share a more sensory-based and personal experience with the artifact. This technology enables the viewers to have visual, auditory and even tactual interactions on the digital medium, thus having a much more realistic experience. VR experiences help the viewer not only observe the artifact, but actively interact with it, as it eliminates the conventional distance between the viewer and the artifact, specifically in the field of art. In the light of this transformation, the modern art organizations and the museums now take into consideration the technological opportunities and reshape their display methods. They aim to put out a more profound and specialized art experience for their viewers with the VR-aided displays (Akçaoğlu & Köse Doğan, 2020).

While the conventional museum studies prescribe the artifact to be preserved in a display window, the digital display methods highlight the importance of the visitors’ direct interaction with the artifact and even reshaping them. The assistance of various technological devices such as touchscreens, digital settings, VR headsets and holograms is benefitted

to help the viewers connect with the work. As a result of utilization these agents, the role of the art manager is no longer solely to organize the place, but to effectively control the digital interfaces, co-operate with the technical team and plan the digital artifacts' curatorship presentation, and more such multi-layered tasks. In today's world, many art organizations utilize the VR technology in acts such as collection display and digital exhibition design. As these technologies activate the 'cycle of experiential learning', especially regarding the introduction of cultural legacy, it is made possible for the information to have a more permanent effect on the viewer (Moorhouse et al., 2017). Thus, the digital artifacts are viewed not only for their aesthetic value, but for their properties as cognitive and educational contents.

The digital art and virtual reality technologies rebuild the theoretical frame and the fields of execution of the art management discipline. The artifacts are now re-interpreted by way of not only seeing, but feeling, living and being present. This study examines the impact of the digital art on modern art methods, specifically the alterations caused by the VR technology on displaying methods. The fundamental goal is to reveal the way that the digital technologies change how the artifacts are presented and perceived, and how this change is reflected on art management and curatorship practices. In this regard, the experiential, educational and cultural impacts of this technological transformation is reviewed through the example of Sanxingdui Museum.

In an era where the relationship between the art organizations and the viewer is being reshaped in a rapidly digitalized world, a new understanding has developed regarding the roles of curators and art managers who work for these organizations. This study, which is intended to benefit this demand, utilized a qualitative method based on the chosen sample and analysed the example of digital transformation implemented by the Sanxingdui Museum. Through a series of analytics carried on with virtual excavation experiences, interactive exhibition tools and digital curatorship practices, the occurring changes both for the viewers and the backstage of the art organizations are analysed.

2. The Evolution of the Curatorship Practices in the Light of Digital Transformation

For a long time, curatorship has been viewed as a specialty that encompasses multi-dimensional responsibilities such as the selection of artifacts in the, establishing the thematic framework for the exhibitions, organizing the collections and navigating the relationships between artists. Curator in the

conventional sense, is the agent that is not in direct contact with the viewer but acts as the building block behind the exhibition experience. They ensure the integrity of the exhibition by taking into consideration the aesthetic value of the artifacts, along with their historical, cultural and academical aspects. Curators have taken onto technical jobs such as organizing the exhibition, collection policies and the preservation of artifacts, as well as the intangible jobs of creating conceptual integrity and building a narrative compatible with the identity of the art organizations.

Conventional forms of exhibitions, in a wider lens, see the viewer as an observer. Exhibition halls are generally known as a quiet and controlled setting housing “untouchable” artifacts. On the other hand, the viewers can only study the artifacts from a distance and follow the line of narration established by the curator. Information transference is carried out by the textual descriptions, catalogues and labels designed for the display, and this form of communication has caused the viewers’ emotional or physical participation to recede. This approach has caused the contact between the curator and the viewer to remain one-dimensional, and the viewer, instead of being the subject that recontextualizes the exhibition, is reduced to a receiver of information. In this aspect, although the curator is a central figure that determines the exhibit’s intellectual and artistic direction, the individuality aspect of the exhibition experience is largely dependent on the curator’s seniority, narrative set-up and spatial organizations.

The development of technology and integration of digital tools into cultural layouts led to both technical and conceptual transformations of this conventional structure. The integration of digital platforms into the medium of art not only helped the viewer to become an active subject who directly participates in this experience but also helped the curator to become the director of the interaction who designs this experience and sets up the narrative (An, 2024). With the help of their part in the digital exhibition setting, instead of solely creating content, the curator conducts how this content will be received. In this regard, beyond the agent of physical space organization, the curator takes on the role of the creator of digital narrative field. Paul’s (2020) concept of neomateriality regarding digital art puts forward a strong framework to understand the transformation of the curator. Neomateriality is a concept that does not confine materiality inside the box of mere physical and tangible beings, and instead encompasses materialistic processes such as digital data, algorithms and viewer interactions. He states that, although the digital artifacts are not created in a tangible setting, the interactions and experiences with the viewer give the digital artifacts both a

tangible and intangible reality. Thus, despite taking place in virtual settings, digital art obtains a material presence.

Digital curatorship helped differentiate the viewer's interaction from the conventional one. The curator is a constructor that determines "the viewer's experience", in addition to "what" is being displayed and "how". Therefore, being a curator has become a matter of analyzing, navigating and interpreting the user behavior, instead of an agent of solely giving information. As a result, the curator has become a specialist who is both able to command the technological foundation and to remain faithful to the essence of art.

In today's world of art, the curator takes on the role of establishing a bond between the social and cultural sense. In this respect, the task of the digital curator is not only to be a "techno-cultural" figure, but also to take on an ethical liability. Among the hardships of being a digital curator is to put out a structure that navigates the user's personal experience, digitalizes the artifact without corrupting or manipulating its message and expand that message with the help of technology.

3. The Digital Transformation of Sanxingdui Museum: From Custom to Technology

The preservation of cultural heritage by means of digital tools provides effective methods for physical preservation and access to a wider audience, in particular. In this respect, apart from being an institution housing China's outstanding archeological heritage, Sanxingdui Museum is also exemplary in that it successfully integrated digital technologies into museum practices. Transferring its historical abundance to the virtual platforms, the museum offers a multi-layered cultural experience, in addition to going beyond the physical limitations. This study examines the museum's digital transformation process, the experience of virtual excavation being the main point of the study. Virtual excavation practice is a significant indicator of transformation in the field of modern museology, as it offers a user-based, experiential and interactive learning model.

With a history dating back to 3000 B.C., Sanxingdui civilization's bronze masks, giant statues, gold and jade artifacts are exhibited on both physical and digital media by the museum (Mou et al., 2023). Sanxingdui Museum is celebrated for having adopted the widespread digital transformation. It has become China's first ever thematic digital museum in 2014 and taken the conventional museum to the next level with the 360-degree panoramic virtual exhibitions, 3B laser scanning systems and interaction interfaces (Shi et al., 2023, p.1).

Artifacts of the bigger scale and delicate texture such as bronze masks and giant statues in the collection of Sanxingdui must be carefully preserved with consideration of weather conditions, lighting and security. Given the fragile nature of these objects, many displaying limitations are implemented and the exhibiting flexibility is reduced (Huang et al., 2025). Thus, the experiential bond between the visitors and the artifacts are restricted and the artistic interaction remains confined to the surface level. However, along with digital technologies, come the improvements that hold the possibility of overcoming these restrictions. The transference of the bronze and ceramic artifacts in the museum to the digital setting both make it possible for these artifacts to be studied in greater detail and help the viewer exceed the physical confines of the museum. Along with the physical visitors of the museum, online users all around the world can access the museum's items (Figure 1).

Figure 1 Binocular Stereo Photoshoot of the Artifacts to be Transferred to the VR Setting (Tian et al., 2024)



Among the digital installations in the museum are the touchscreen digital catalogues and 3-dimensional interactive screens. This makes it possible for a “hybrid exhibition” model, utilizing both the physical and digital user experience. Based on the example of Sanxingdui Museum in the case of digital museums, artifacts have become an educational, sensational and narrative tool of transformation, in addition to the technological developments. Therefore, by preserving the physical artifacts, the museum offers the visitors an innovative experience and a field of exploration.

3.1. Technological Base and Interactive Features of the Sanxingdui Museum Virtual Excavation Experience

Digital museum practices have created significant differences in how the visitors can interact with the cultural heritage by improving the online accessibility of the artifacts. Especially through the interactive experiences through virtual reality (VR), the viewer has been elevated from the position

of a passive observer to a subject that is present. Thus, Sanxingdui Museum has been novelly transformed into a museum by combining digital narrative techniques with archeological content.

The virtual excavation experience provided by Sanxingdui Museum is a multi-layered interactive model where modern digital narrative and the various types of sensory learning come together. During the experience, the visitor is an active participant and can learn what it feels like to take part in an ancient archeological process. The system includes VR headsets, motion detectors and an interactive kit integrated into sensory controls. Wearing the technological gears, the visitors can discover seven sacrificial trenches which are modeled from life. Inside these trenches are the digitalized versions of remarkable artifacts excavated from the Sanxingdui excavation field, such as bronze masks, ritual objects with golden leaves and ceremonial trees. During the digital experience, the viewers unearth the artifacts with physical instructions of “excavating” and “brushing” in the digital excavation field (Figure 2). In addition to these archeological excavation experiences, the visitors can also go on boat trips and ride mythical Chinese birds (China Cultural Center, 2024).

Figure 2 A Scene from the Sanxingdui Excavation Field VR Experience (Newsflare, n.d.)



The technical foundation of this technology is not designed solely as a visualization technology, but as a system that can provide a chance of dynamic interaction with the user. The VR device views the user and simultaneously reshapes the direction of movement and contents of the scene in accordance with the user’s head and hand movements. For example, as the user does the scraping and brushing movements on the excavation field, the layers and particles of virtual soil move and crumble accordingly. And so, the artifact is unearthed. These movements activate the audio-guide, and the

user receives historical facts about the artifact. Thus, the user is educated on the artifacts and the history simultaneously through their own physical activities. Interaction at such a level improves both the learning and the experience on a positive note.

In conventional museum layouts, the informative plates are on fixed boards, and the viewer is in a passive mode. However, the digital systems help the viewer obtain the information themselves and change all users' experience (Figure 3). This stems from all users experiencing and using technology differently. Interaction with the objects brings along a customized cycle of learning (Shi et al., 2023). This is one of the most significant benefits of VR technology for the methods of informing in museums.

Figure 3 Sanxingdui Museum, Visitors Experiencing the VR Technology (Tian et al., 2024)



Virtual reality experiences contribute to eliminating the concepts of time and place. During the experience, the user acts both as a modern observer and an archeologist exploring the ancient artifacts. This state of “dual-temporality” elevates the historical experiences from mere narratives to a re-livable dimension within the coordinates time-space, which is acquired through physical movements. As a result of these experiences, these artifacts or cultural objects, in addition to being representatives of past times, become re-generatable by the visitor. With the opportunities of Sanxingdui Museum, the art of exhibiting can leave the confines of displaying content and improve in its ability to generate meaning with the courtesy of user participation.

4. Alternating Role of the Art Manager in the Digital Age

Today, with the integration of digitalization into the field of art, various transformations in viewer experiences have taken place and along with these transformations, the conventional sense of museum has also been altered. The art manager has become an agent that manages the digital basis, plays an active role in the process of designing user experience and takes place in the aesthetic constructing step, along with the organizer of the exhibition. Sanxingdui Museum can be considered a field of execution that can be exemplary with its many methods of digital display in the museum in this process of general transformation.

As stated by An (2024), the digital curatorship settings are depicted as interactive compositions where “customized, participant and data based” viewer experiences are generated. In Sanxingdui Museum, this is solidified by a system where the visitors go into the virtual excavation fields and unearth the artifacts with physical motions, all through the utilization of VR headsets. This type of interaction modifies the art manager into a cultural interface designer. With the user motion-activated digital systems, the art manager must ultimately cooperate with the software developers and the designers of the experience. In this respect, the art manager analyzes the user data, interprets the feedback and works on the customization of the user experience. An (2024) describes the new paradigm of the digital curatorship as a post-kustos² structure. This approach transforms the curator from an information provider to an experience builder. An (2024) also points out that digital curatorship is not a specialty that solely requires command of digital tools and platforms, as it brought along new areas of discourse such as the preservation of the digital identities, sustainability of the content and ethical responsibilities. In the case of the VR experience in Sanxingdui Museum, when the visitors interact with the digitalized cultural artifacts, they get to experience them as though it is their own discovery. Thus, the curator and the art managers must preserve the uniqueness of the historical narrative and provide the user with an experience that is customized but not misleading.

5. Conclusion

The development of digital art and the integration of new technologies into art has necessitated a new approach in the field of art management. As the relationship between the artifact and the viewer evolved, the role of the art manager has come to be redefined. Apart from the physical layouts and

2 Defines the curatorial paradigm shift that arised post-digitalization.

selection of the artifacts, art management has become directly associated with the design of the digital platforms, interfaces and interactive settings. In this respect, digitalization, as an instrumental improvement, also brought upon a change of structural paradigm in the discipline of art management.

The example of Sanxingdui Museum displays various ways of exhibiting digital technologies and the profound change in the relationship between the users. In this museum, the visitor has stepped up from the position of observer to a participant and even went as far as to being included in the re-production process of the art, wearing the archeologist's hat. The viewers can experience historic procedures with the use of VR headsets, motion detectors and sensory controls. These technologies have behavioral, cognitive and emotional influences on the persons' perception towards the exhibit. Therefore, the experience with the artifacts is both deepened and personalized. This experience is personalized through the visitor's physical movements and preferences, and so a new learning and discovery process for every individual is generated. Every interaction of the user is reflected on the system with the offer of new information. This way, an interaction-based, dynamic learning process is achieved, which is different from the one-way information labels. Thus, digital art displays have educational properties.

Due to digital art's independence from physical material, it has become an experiential tool. Artifacts are redefined by their field of interaction. As this new definition transforms the artifacts, the curatorial practices went from context organizer to experience builder. Digital media curators are tasked with building how the user will participate in the exhibit and through which sensory and cognitive processes. Therefore, the digital curator has now evolved into a title that can be described as experience engineering. The art manager with this new role is now responsible with managing the digital base, participating in the designing process of interactive interfaces and analyzing users behaviorally. With this transformation, art managers advanced to an interdisciplinary position and into authorities who develop user-focused strategies. Digitalization combined the roles of the curator and the manager together. The viewer experience has become an educational, present and sustainable process. In this respect, digital art creates a field of interaction that is shaped with its user and learned in experiences. As a result, digital art has now become an entity that is living and transforming together with the viewer.

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Extended Abstract

The intersection of art and technology has generated a paradigmatic shift in how art is created, exhibited, and perceived. The integration of digital tools, particularly Virtual Reality (VR), Augmented Reality (AR), and interactive interfaces have redefined traditional exhibition models by placing audiences at the center of immersive, multisensory, and participatory experiences. As a result, digital art no longer simply exists as an object to be observed but functions as an evolving system shaped by viewer interaction, digital environments, and data-based storytelling. This transformation has deeply influenced the domains of art management and curatorial practice, requiring professionals to acquire interdisciplinary competencies that merge technological fluency with artistic and cultural sensitivity.

This study explores the conceptual and practical implications of digital transformation in contemporary art presentation through a case analysis of the Sanxingdui Museum in Sichuan, China. The museum represents a pioneering institution that bridges archaeological heritage with digital innovation. By incorporating VR based virtual excavation experiences, Sanxingdui allows visitors not only to observe cultural artifacts but to interact with them in simulated, archaeologically accurate digital environments. Using motion sensors, VR headsets, and tactile controls, users are encouraged to engage in excavation, cleaning, and discovery processes transforming static viewing into dynamic learning. These interactive digital installations offer a personalized cognitive experience that engages the viewer's physical, emotional, and intellectual faculties. Unlike traditional museum setups, where information is passively consumed, digital platforms like those at Sanxingdui allow users to co-construct meaning through movement, decision-making, and real-time feedback. Such environments reflect a broader shift in museology where the boundaries between educator, curator, and technologist increasingly blur.

The role of the curator in this digital context evolves from being a content selector and interpreter to an experienced architect. Digital curators are responsible not only for presenting artwork but also for designing the frameworks through which users interact with cultural content. Concepts such as “neomateriality,” as introduced by Christiane Paul (2020), are central to understanding this shift acknowledging that digital data, algorithms, and audience participation contribute to the materiality of the digital artwork. Thus, curatorship becomes an act of structuring interfaces, sensory cues, and narrative trajectories in ways that resonate with individual users while preserving the integrity of the cultural content.

Similarly, art managers are now tasked with overseeing hybrid exhibition infrastructures that blend physical and digital components. Their responsibilities include coordination with technical teams, audience behavior analysis, user experience optimization, and ensuring accessibility and inclusivity in digital environments. In the Sanxingdui Museum, for instance, this has involved the design of immersive exhibitions that make culturally and historically sensitive objects such as fragile bronze masks or ritual items accessible to global audiences without compromising preservation. Moreover, the museum's implementation of virtual excavation narratives facilitates the "dual temporality" of cultural heritage allowing users to inhabit both historical and contemporary roles simultaneously. They become both archaeologists and modern observers, activating deeper empathetic and intellectual engagement. The experience not only educates but also transforms the visitor's relationship with cultural history, reframing heritage as a living, participatory process.

In conclusion, the Sanxingdui Museum illustrates how digital technologies can enrich the scope of art management and curatorial practices by fostering experiential, educational, and interpretive depth. Digital art, when supported by immersive tools, generates an expanded curatorial field in which content delivery is replaced by experience facilitation. As such, both curators and art managers are redefined as multidisciplinary agents who craft meaningful, interactive, and ethical encounters between audiences and cultural artifacts. This extended analysis emphasizes the urgent need for a theoretical and practical reorientation of art institutions in alignment with digital realities, advocating for a holistic approach to user centered, technologically informed cultural presentation.