TECHNOLOGY-MEDIATED MUSEUM EXPERIENCE: MANAGERIAL CHALLENGES AND NEW MODELS FOR AUDIENCE ENGAGEMENT

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Abstract

Purpose – This study examines the role of technology in transforming the museum experience, with a focus on its impact on audience engagement, interpretive practices, and management processes. The aim is to explore how the integration of technology facilitates the transition from an object-centered to an experience-centered museum model.
Methodology/Design/Approach – The study employs a qualitative approach based on semi-structured in-depth interviews with 23 experts from museums, interactive science centers, and immersive cultural spaces. A purposive sample was used, and the collected data were analyzed through thematic analysis to identify key patterns and categories.
Findings – The results show that technology is perceived not as a supplementary tool, but as a mediator of experience that enables a higher degree of interactivity, personalization, and engagement. At the same time, significant management challenges related to resources, competencies, and strategic planning emerge. A conceptual tension between object-based and experience-based authenticity is also identified, as well as the need for differentiated approaches to different audiences.
Originality of the research – The study contributes by integrating educational, experiential, and managerial perspectives into a unified analytical framework. It provides empirical data from the Bulgarian context – a poorly researched area – and formulates practical guidelines for the strategic integration of technologies in the museum sector.
Keywords technology, museums, audience engagement, managerial challenges

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INTRODUCTION

In recent decades, the museum sector has undergone a significant transformation driven by the development of digital technologies and the changing expectations of audiences. Museums are increasingly viewed not only as spaces for preserving and presenting cultural heritage, but also as dynamic environments for experience, learning, and social interaction. In this context, technology plays a key role, changing the way visitors perceive, interpret, and interact with content. The traditional object-centered museum model, in which the primary focus is on the exhibit and its display, is gradually giving way to an experience-centered approach. This transition is linked to the growing importance of engagement, emotional impact, and personalized interaction with audiences. As a result, museums are faced with the need to rethink their interpretive practices, educational models, and management strategies.

Digital technologies, including interactive installations, mobile apps, virtual and augmented reality, create new opportunities for presenting cultural content and expand the boundaries of the museum experience. They enable a higher degree of engagement, accessibility, and personalization, but at the same time raise a number of questions related to authenticity, the role of the original object, and the balance between technology and content. Furthermore, the implementation of technologies is hindered by significant management challenges, including limited resources, the need for new competencies, and a lack of long-term strategies.

Despite growing interest in the role of technology in museums, there is a limited number of empirical studies that examine the integration of technology in its entirety - as a simultaneously educational, experiential, and managerial phenomenon. This is particularly true in the Bulgarian context, where research has focused primarily on the digitization of various collections, while broader transformations in the visitor experience in museums remain understudied.

This study aims to analyze the technology-mediated museum experience by examining its impact on audience engagement, interpretive practices, and management decisions in the museum sector. More specifically, the study seeks to answer the following research questions: (1) what is the role of technology in transforming the museum experience; (2) what are the main management challenges associated with its implementation; and (3) how does technology influence perceptions of authenticity and interaction with different audiences. To achieve these objectives, a qualitative research approach was employed, based on in-depth interviews with representatives of various types of museum and cultural institutions. By integrating theoretical and empirical perspectives, the study contributes to a better understanding of the role of technologies as a strategic resource in the contemporary museum and offers guidelines for their effective integration.

1. LITERATURE REVIEW

This study is based on an interdisciplinary theoretical framework that integrates key concepts from contemporary museology, theories of experience and learning, and research in the field of human–technology interaction. This framework enables an analysis of the technology-mediated museum experience at both the conceptual and practical management levels. Fundamental to the study is the theory of constructivism in museum education, developed by George Hein (Hein, 1998). According to this model, learning is not a passive assimilation of predetermined knowledge, but an active process of meaning-making based on the visitor's personal experience, cultural context, and prior knowledge. In the museum context, this means that the visitor is an active interpreter, not a passive recipient of information. Meaning is not fixed but is constructed individually, and the exhibition should create conditions for interaction, choice, and reflection. This theory is key to the analysis of interactive and science museums, where the audience's experience and participation are placed at the center of the exhibition and educational model. The second main theoretical axis is the theory of technology as experience, developed by McCarthy and Wright (McCarthy & Wright, 2004, 2005). This approach expands upon traditional models of usability and effectiveness by emphasizing the „felt experience" of interaction between humans and technological systems. According to the authors, the experience is structured through four interrelated dimensions: sensory (sensory impressions), emotional (engagement, pleasure, disappointment), compositional (structure and dynamics of the experience over time), and spatio-temporal (context and environment of interaction). A third key element of the theoretical framework is the theory of cultural heritage interpretation formulated by Freeman Tilden (Tilden, 2007). According to Tilden, interpretation is not merely the presentation of facts, but rather a process of revealing meanings, interconnections, and contextual frameworks that provoke interest and personal engagement. In a museum setting, this approach involves the use of storytelling, the creation of emotional and cognitive connections, and the adaptation of content to different audiences. Building upon classical interpretation is the concept of Digital Heritage Interpretation, developed in the works of Parry (2010), Cameron and Kenderdine (2007), and Tallon and Walker (2008). This approach views digital technologies not as neutral tools, but as mediators of meaning that transform the way heritage is perceived, alter the relationships between the institution, the object, and the public, create new forms of authenticity (digital and experiential authenticity), and expand access, personalization, and participation. A unifying element of the theoretical framework is the transition from an object-centered to an experience-centered museum model, viewed in the context of the experience economy (Pine & Gilmore, 1999) and contemporary museological practices. In this model, the museum functions as a space for participation, emotional impact, and meaning-making, while technologies are used as strategic tools for engaging diverse audiences. The combination of the constructivist model of learning, experience theory, heritage interpretation, and digital interpretation forms a comprehensive analytical framework through which the technology-mediated museum experience can be examined simultaneously as an educational process, an experiential and emotional phenomenon, an interpretive practice, and a managerial and strategic choice. The various approaches are summarized in Table 1.

Table 1: **Theoretical approaches, authors, and key concepts**

Theoretical approach	Authors	Key Concepts	Application in the study
A constructivist model of learning in the museum	Hein (1998)	Active learning; meaning-making; individual interpretation; contextual knowledge	A framework for analyzing the visitor's role as an active participant and for understanding the museum as an environment for experiential learning
Human-Technology Experience and Interaction Theory	McCarthy & Wright (2004, 2005)	Technology as an experience; felt experience; sensory, emotional, compositional, and spatiotemporal dimensions	An analysis of interactive, digital, and immersive technologies as mediators of experience, rather than merely as functional tools
Heritage Interpretation Theory	Tilden (2007)	Interpretation as the uncovering of meaning; storytelling; emotional and cognitive engagement	It is used to analyze narrative strategies and interpretive models in museum and digital environments
Digital Interpretation of Cultural Heritage	Cameron & Kenderdine (2007); Parry (2010); Tallon & Walker (2008)	Digital media as mediators of meaning; participation; personalization; digital and lived authenticity	Provides a framework for analyzing VR, AR, interactive screens, mobile apps, and immersive spaces
An experience-centered museum model	Pine & Gilmore (1999); Museology	The experience economy; emotional value; participation and engagement	A conceptual framework for the transition from an object-centered to an experience-centered museum model
The managerial and strategic context of technology	Contemporary Cultural Management	Technology as a strategic choice; organizational transformation; sustainability	Enables the analysis of management decisions, risks, and challenges associated with technology implementation

Source: Authors' own work

The concept of the participatory museum, developed by Simon (2010), also fits into the development of the constructivist model of learning; it views visitors not only as active interpreters but also as co-creators of content. In this model, the museum becomes a platform for dialogue, collaborative meaning-making, and social interaction, with technology playing a key role in facilitating the participation and engagement of diverse audiences. A complementary perspective to the constructivist approach is offered by Falk and Dierking's contextual model of learning (Falk & Dierking, 2013), which emphasizes that the museum experience is shaped by the interaction between the visitor's personal, social, and physical contexts. This model is particularly relevant in the context of technology-mediated experiences, where digital interfaces transform both the environment and the social dynamics of the visit. Contemporary research in the field of user experience (UX) complements this approach by emphasizing the emotional, hedonic, and meaningful aspects of interaction with technology (Hassenzahl, 2010). In a museum context, this means that the design of digital solutions should go beyond mere functionality and create experiences that are meaningful, engaging, and memorable for visitors. In recent years, significant attention has been paid to the role of immersive technologies (VR, AR, and XR) in cultural heritage, as they are viewed as tools for creating deeply engaging and embodied experiences (tom Dieck & Jung, 2017). These technologies expand traditional forms of interpretation by allowing visitors to "enter" the content and interact with it in new, multisensory ways.

2. CONCEPTUAL FRAMEWORK

This study is based on a conceptual framework that integrates theoretical approaches from museology, experience theory, human–technology interaction, and cultural management, with the aim of analyzing the technology-mediated museum experience as a multifaceted phenomenon. The framework views the museum not merely as a space for presenting cultural objects, but as a dynamic system in which processes of learning, interpretation, experience, and strategic management intersect. At the core of the model lies the constructivist approach to learning (Hein, 1998), which positions the visitor as an active participant in the process of meaning-making. This perspective is expanded through the concept of the participatory museum (Simon, 2010) and the contextual model of learning (Falk & Dierking, 2013), which emphasize the role of personal, social, and spatial context in shaping the museum experience. In this sense, the interaction between the visitor and the museum content is viewed as a dynamic and contextually determined process. The second key element of the conceptual framework is the understanding of technologies as mediators of experience. In line with the theory of McCarthy and Wright (2004, 2005), technologies are not viewed as neutral tools, but as active participants in the construction of experience, influencing its sensory, emotional, and cognitive dimensions. This approach is complemented by contemporary concepts of user experience (Hassenzahl, 2010), which emphasize the significance, engagement, and quality of interaction. The third component of the framework relates to the interpretation of cultural heritage (Tilden, 2007) and its evolution in a digital environment (Parry, 2010; Cameron & Kenderdine, 2007; Tallon & Walker, 2008). Here, technologies are viewed as tools for creating narratives, contextualization, and personalization that transform the way visitors perceive and interpret cultural content. Furthermore, immersive technologies (VR, AR, XR) expand this process by creating opportunities for deeply engaging and physically experienced forms of interaction (tom Dieck & Jung, 2017).

A unifying element in this framework is the shift toward an experience-centered museum model, viewed within the context of the experience economy (Pine & Gilmore, 1999). In this model, value is created through the experience, not just through the exhibit, with technologies functioning as a strategic resource for engaging audiences. From a management perspective, the conceptual framework includes an understanding of technology as part of a broader process of digital transformation, requiring new organizational models, competencies, and strategic leadership (Westerman et al., 2014; Angelov, 2025). In this context, the management of information, content, and technologies is viewed as a key factor in achieving sustainability and competitive advantage. Based on these theoretical foundations, the study proposes a conceptual model in which the technology-mediated museum experience is shaped by the interaction between four main components: (1) the visitor as an active participant; (2) technology as a mediator of experience; (3) interpretive strategies and content; and (4) the managerial and organizational context. These components are interconnected and dynamic, and their interaction determines the quality, depth, and impact of the museum experience. The conceptual framework suggests that the effective use of technologies in museums depends not only on their availability but also on how they are integrated into interpretive design, tailored to audience characteristics, and supported by appropriate management decisions. In this way, the framework provides an analytical tool for exploring the relationships between technology, experience, and management in the contemporary museum context.

3. METHODOLOGY

The study employs a qualitative research approach aimed at gaining an in-depth understanding of the perceptions, attitudes, and management practices associated with the implementation of technology in a museum setting. The in-depth interview method was chosen for its ability to reveal complex and context-dependent processes that are difficult to capture through quantitative methods. The semi-structured nature of the interviews allows for both comparability of responses and flexibility to explore emerging themes. The interviews were conducted using a pre-designed questionnaire that included thematic sections related to the role of technology in the museum experience, management challenges, perceptions of authenticity, and strategic approaches to different audiences. The questionnaire aligns with the study's theoretical framework and aims to establish a connection between conceptual frameworks and empirical data.

The collected data were analyzed using thematic analysis, which allows for the identification of recurring patterns in the respondents' answers. This approach makes it possible to identify key themes related to the transformation of the museum experience through technology, as well as to reveal tensions and contradictions in management practices. The analysis was conducted through several stages, including repeated reading of the interview transcripts, initial coding of meaningful segments, and the grouping of codes into broader thematic categories. Particular attention was paid to both shared perspectives among respondents and divergent viewpoints that reflected institutional differences and managerial challenges. To enhance the reliability of the analysis, the principle of analytical transparency was applied, using direct quotes from the interviews to illustrate the main conclusions. This ensures traceability between the empirical data and the interpretations made. Additionally, the results were interpreted by comparing them with established theoretical models, which contributes to their validity.

Respondents were selected through purposive sampling, with inclusion criteria based on professional experience, a managerial or expert position, and direct involvement in the planning, implementation, and management of technological solutions in a museum or related institutional setting. Respondents include representatives of traditional museums (general history and specialized - archaeological, ethnographic, natural science, military, technical, literary, art, and others) - state, municipal, or privately owned; interactive museums and science centers - municipal or privately owned - and thematic and immersive cultural spaces - privately owned. Several key organizational positions are represented in the sample based on the roles held: directors and deputy directors, department and program heads, curators, museum educators and content experts, specialists in digital technologies, exhibition and UX design, as well as coordinators of educational and public programs. The respondents have between 5 and over 20 years of professional experience, which ensures a diversity of perspectives - both strategic and operational. Some of the participants have an interdisciplinary background combining cultural management, museology, pedagogy, communications, and information technology, which contributes to the complexity and analytical depth of the empirical data. This profile of the sample allows the study to cover various institutional models, management practices, and approaches to audience engagement in the context of a technology-mediated museum experience.

4. FINDINGS

An analysis of the in-depth interviews allows for the identification of several key thematic categories that structure respondents' perceptions of the role of technology in the museum environment. These categories reflect both convergent positions (shared understandings) and internal tensions related to the managerial and interpretive aspects of the technology-mediated experience. Analysis of the respondents' answers reveals a clear consensus regarding the transformative role of technology in the museum environment. The perception of technology goes beyond viewing it as a supplementary tool and positions it as a primary mediator of experience, structuring the way visitors interact with the content. Respondents emphasize that technology shifts the focus from the exhibit to the experience, enabling deeper engagement and personalization. This is evident in both interactive exhibits and educational and immersive formats: "In recent years, the museum experience has become more interactive and visitor-oriented. The public seeks participation, visualization, accessibility, and emotional engagement - not just information. The role of technology and multimedia content has grown significantly. Visitors don't just want to read something; they want to understand more than what is written; they want to delve deeper." - Respondent 6. These observations correspond with the theory of technology as an experience (McCarthy & Wright, 2004, 2005), in which technologies are viewed not as neutral carriers of information, but as active participants in the construction of meaning. Observations strongly echoed by Respondents 2, 8, 17, 19, 21, and 22. This perspective can be interpreted as a shift from an instrumental to an experiential understanding of the role of technology, in which it functions as a structuring element of the overall museum experience.

A second clearly emerging theme in the interviews is the conscious shift from the traditional object-centered museum model to an experience-centered approach. Respondents shared that audience expectations require a new type of museum behavior, in which emotional and sensory impact are just as significant as informational content. "In our institution, this change has manifested itself through a commitment to more contemporary and interactive ways of presenting cultural and historical heritage. An example of this is the opening of the "Peeva House" Digital Center, which combines the traditional museum environment with digital technologies. Through it, the history of Koprivshtitsa is presented in a more modern and accessible way, allowing visitors to experience it from a different and interactive perspective. This contributes to a more dynamic museum experience and greater interest from visitors of various age groups." - Respondent 13. This transition is often described as a strategic yet risky process in which institutions seek a balance between innovation and the preservation of cultural identity. Twenty of the 23 respondents share similar observations. This transition can be viewed as a systemic transformation of the museum model, in which value shifts from the presentation of objects to the creation of meaningful and emotionally engaging experiences.

Empirical data reveals that the implementation of interactive and immersive technologies is associated with significant management challenges. Among the most frequently cited problems are limited budgets, a lack of long-term planning, and the need for new skills within teams. "Our museum faces several key challenges: a limited budget; technical support; the need for staff training - it's easier when the staff includes younger individuals who are more inclined to engage specifically with this; and adapting to the authentic historical setting, which is also a major challenge." - Respondent 8. Similar challenges are reported by respondents 2, 4, 5, 6, 7, 9, 10, 11, 17, 19, 21, and 22. Some respondents also note the tension between technological capabilities and the actual needs of the public, emphasizing the danger of "technological fetishism" - the use of technology without a clear interpretive logic. "In a world where children have access to the latest devices at home, museums

must constantly raise the bar to remain engaging, which requires significant financial and expert resources. Last but not least is the balance between technology and the human factor. Technology must be intuitive, but sometimes it can isolate the visitor rather than engage them" - Respondent 12, a view also supported by Respondents 3, 15, and 16. The data show that these challenges are not isolated but form an interconnected system of constraints that affect the ability of institutions to implement sustainable technological solutions.

A key analytical focus in the respondents' answers relates to the issue of authenticity. Some of those interviewed expressed concerns that excessive digitization could divert attention from the original exhibit or undermine its value. "... Another challenge may be finding a balance between the use of modern digital tools and the preservation of the authentic museum environment, so that technology complements rather than replaces the historical content. - Respondent 9. At the same time, Respondents 1, 3, 6, and 13 view digital technologies as a means of creating a new type of experiential authenticity that does not replace but rather complements the original through contextualization and storytelling. "If we look more closely, authenticity is not a property of the object, but a quality of the inner experience. "In this sense, digital media can create, so to speak, a new kind of lived authenticity when they cease to be merely a source of information and become a bridge. In a way, authenticity is born when technology does not provide ready-made answers but serves as a tool for active imagination." - Respondent 12. These opposing positions outline an important internal institutional debate that is directly linked to the strategic decisions of cultural organizations. A clear conceptual tension emerges between object-based and experience-based authenticity, reflecting the broader debate in contemporary museology.

Respondents clearly distinguish between approaches for different audiences, emphasizing that a technology-mediated experience is not a one-size-fits-all solution. For children and young people, interactivity and game-based elements are seen as key, while for adult visitors, narrative and depth of content prove to be more important. "Technology allows for age-appropriate content adaptation—educational games for children, in-depth information for specialists, visual materials for foreign visitors." — Respondent 16 This observation supports the constructivist model of learning, according to which different audiences construct meaning in different ways depending on age, experience, and cultural context. In conclusion, the interviews show that technology is increasingly viewed as part of an institution's long-term identity rather than as a temporary innovation. Respondents emphasize the need for strategic thinking in which technology is integrated into the museum's mission and vision. "The role of technology is inevitable; the balance between what we might call authenticity and what we might call an immersive experience is delicate; we must seek and implement a balance that allows for the greatest possible access for audiences." - Respondent 2. This distinction shows that the technology-mediated experience cannot be universalized but requires adaptive strategies tailored to the diverse cognitive and cultural profiles of visitors.

An analysis of the in-depth interviews reveals that the technology-mediated museum experience functions as a complex process in which educational, experiential, and managerial dimensions intertwine. Technologies are establishing themselves as a key factor in engaging audiences, but their effectiveness depends on their strategic integration, interpretive logic, and sensitivity to the institutional context. The results outline the technology-mediated museum experience as a multifaceted and context-dependent process in which technologies function simultaneously as mediators of meaning, tools for engagement, and drivers of organizational transformation. However, their effectiveness is directly dependent on the presence of a clear interpretive logic and strategic integration within the institutional context.

5. DISCUSSION

This study contributes to the existing literature by providing empirical evidence of the transformative role of technology in the museum environment and confirms the shift toward an experience-centered model of cultural institution operations observed in previous studies. The analysis of the in-depth interviews reveals a consensus among respondents regarding the role of technology in museums and similar institutions, clearly defining its transformative role. Technology is perceived not only as a complementary tool but also as a primary mediator of experience, structuring the way visitors interact with content and supporting the theory of McCarthy, J. & Wright, P. (2004, 2005) regarding technology as experience. The results not only confirm this theoretical model but also expand upon it, demonstrating how experience is mediated within an institutional context subject to organizational and resource constraints.

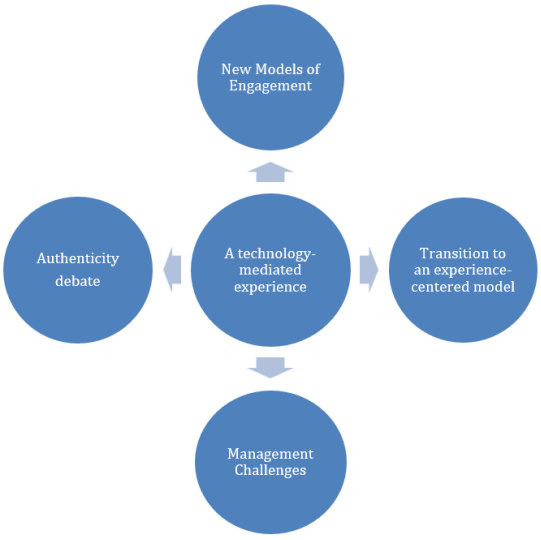
Of paramount importance and a key finding of the study is the shift in perception regarding the visitor's role in the museum experience and the recognized transition from the traditional object-centered museum model to an experience-centered model in the presentation of content. Some respondents note that this process began long ago in Western European countries, while in Bulgaria the pace has slowed or has not even begun for some institutions. All clearly acknowledge the shift in public expectations, which now demand a new type of museum experience where emotional and sensory impact are just as significant as informational content - key elements of Hein's constructivist model (1998). The emergence of an increasing number of private initiatives using technological solutions as the primary vehicle for the experience presents traditional museums with the challenge of remaining competitive in attracting and engaging audiences. Empirical data reveals that the implementation of interactive and immersive technologies is associated with significant management challenges. Among the most frequently cited problems are limited budgets, a lack of long-term planning, and the need for new competencies within teams. A commonly held view is that older museum professionals perceive technology as a threat. Another important finding of the study is the concern

expressed by some respondents that excessive digitization might distract attention from the original exhibit or undermine its value. Here, respondents make a serious attempt at analysis and identify the issue of authenticity as central, while others see an opportunity to create a new type of experiential authenticity, built upon a technological narrative and the construction of a contextual environment for the content. Processes and observations that are also discussed by Parry, R. (2010). The analysis shows that respondents are well acquainted with the different segments of their audience and the opportunities that technology offers to influence each of them. Age is the primary criterion for segmenting audiences. The main contribution of the study lies in the fact that it examines the technology-mediated museum experience simultaneously as an educational, experiential, and managerial process, thereby integrating perspectives that are often considered separately in the existing literature.

All these findings unequivocally demonstrate that technology is establishing itself as a key factor in engaging audiences, but its effectiveness depends on its strategic integration, interpretive logic, and sensitivity to the institutional context. In this sense, a large proportion of respondents identify the implementation of new technologies as part of the strategic management of their institutions and acknowledge the risk of using technologies without a clear interpretive logic. These observations also correspond to the broader processes described within the framework of the experience economy (Pine & Gilmore, 1999), in which value for the consumer is increasingly derived less from the product itself and more from the experience that accompanies it. The study's findings clearly distinguish between traditional museums and interactive museums and immersive spaces, with the former facing difficulties in implementing and using technologies, while the latter are their natural vehicles. There is also a clear lack of a consistent government policy, support, and targeted actions on the part of policymakers to modernize museums as a whole and transform them into popular spaces for the public; at present, the motivation and management decisions are left entirely to the leadership of individual institutions. This corresponds to observations in the international literature, according to which the digital transformation of museums in different regions proceeds at varying speeds and intensities, depending on institutional support, resources, and strategic priorities.

From a management perspective, the implementation of technology in museums can be viewed as part of broader digital transformation processes that require organizational adaptation, new competencies, and strategic leadership (Westerman, Bonnet, & McAfee, 2014). In this context, technology is not merely a tool but a factor that transforms business models, processes, and engagement with audiences. The debate over authenticity in the context of digital technologies can also be viewed through the concept of "existential authenticity" (existential authenticity), proposed by Wang (1999), according to which authenticity is not linked solely to the originality of the object, but to the individual's personal experience and emotional engagement. This allows for the interpretation of digital experiences as valid forms of authentic cultural experience. This debate can be interpreted as an expression of a broader tension between material and experiential authenticity, which is intensifying in the context of digitalization and calling into question traditional understandings of the role of the museum object. In this context, management challenges can be examined in three main dimensions: resource-related (financial and technical constraints), organizational (lack of competencies and capacity), and strategic (absence of a long-term vision for technology integration). In this context, information management emerges as a key function for museum leaders, especially in the face of increasing digitalization and the complexity of technological solutions. As Angelov (2025) points out, effective information management is critical for strategic leaders seeking to build sustainable networks and achieve a competitive advantage. In the museum sector, this manifests itself in the need to integrate various sources of data, content, and technologies into a coherent and strategically oriented system. This further underscores the need to develop a new set of managerial competencies in the museum sector related to digital literacy and the strategic use of data. In conclusion, the study shows that the technology-mediated museum experience is not merely the result of the implementation of new technologies, but of their integration into the institution's overall interpretive and managerial framework. This highlights the need for a strategic approach in which technologies are viewed as part of the museum's long-term transformation, rather than as isolated innovations.

Figure 1: **Results summary**



6. LIMITATIONS AND FURTHER RESEARCH

This study has several limitations that should be taken into account when interpreting the results. First, the relatively small sample size (n=23) limits the ability to generalize the findings to all types of museums, interactive centers, and immersive spaces, especially given their diversity and geographic distribution. Second, some of the interviews were conducted online (12 out of 23), which may have affected the depth of the responses and the dynamics of communication compared to in-person interviews. The short timeframe for data collection (March 1, 2026 – March 15, 2026) represents an additional limitation, as it coincided with non-working days and led to difficulties in coordinating with respondents, as well as the exclusion of potential participants. This limits the possibility of a broader coverage of expert positions and institutional types. The subject matter under study remains underdeveloped in the Bulgarian context, as existing research has primarily focused on the digitization of museum collections. This limits the possibilities for comparative analysis and the positioning of the results within the national academic literature. Given these limitations, future research could expand the scope of the sample by including a larger number of institutions and a wider variety of organizational models. Longitudinal studies that track the development of the technology-mediated museum experience over time would be particularly valuable. Combining qualitative and quantitative methods would allow for a more in-depth analysis of the impact of technology on different audiences. Future studies could also include on-site observation and analysis of specific exhibition practices, which would contribute to a better understanding of the relationship between conceptual models and the actual user experience.

CONCLUSION AND PRACTICAL IMPLICATIONS

This study examines the technology-mediated museum experience as a complex and multifaceted process that transforms not only the ways in which cultural heritage is presented, but also the role of the visitor and museum management practices. The results indicate that technology is increasingly establishing itself as a key mediator of experience, structuring the interaction between visitors and content while creating new opportunities for engagement, personalization, and interpretation. The findings further support and empirically reinforce the theory advanced by Pine and Gilmore regarding the experience-centered museum model, demonstrating a clear transition from an object-centered paradigm toward one in which value is generated not solely through exhibits, but through the design of meaningful, memorable, and emotionally engaging experiences. In this context, technologies play a pivotal role; however, their effectiveness is not automatic, but contingent upon the extent to which they are coherently integrated into the institution's interpretive logic, curatorial practices, and broader strategic vision. These findings therefore suggest that digital innovation should be understood not merely as a technical enhancement, but as a strategic mechanism for reconfiguring the contemporary museum experience.

An important contribution of this study is the identification of an existing tension between different understandings of authenticity - on the one hand, linked to the original object, and on the other, based on the visitor's experience and personal engagement. This tension highlights the need for a balanced approach in which technology complements, rather than replaces, cultural content. From a management perspective, the results highlight that the implementation of technology is associated with significant challenges, including limited resources, a lack of expertise, and the absence of long-term strategic planning. This suggests that digitization in the museum sector should be viewed not as an isolated innovation, but as part of a broader process of organizational transformation. On this basis, several practical implications can be drawn. First, museum institutions should develop clear strategies for integrating technology that align with both the organization's mission and the needs of its diverse audiences. Second, investment is needed in human capital development, including the acquisition of digital and interdisciplinary skills. Third, technological solutions should be designed with a focus on the visitor experience, avoiding the use of technologies without clear interpretive value. Furthermore, the results highlight the importance of adaptive approaches tailored to different audiences, with technology used to create differentiated and personalized experiences. This implies a need for a better understanding of visitor profiles and behavior, as well as the integration of data into the decision-making process. In a broader context, the study raises the question of the role of public policies and institutional support for the digital transformation of museums. The lack of coordinated strategies and sustainable funding limits the sector's development potential, underscoring the need for a more active role by national and local institutions. The technology-mediated museum experience should be viewed as a strategic resource with the potential to transform museums into more accessible, engaging, and relevant spaces for contemporary audiences. Realizing this potential, however, requires a balanced approach that combines technological innovation, interpretive depth, and effective management.

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DECLARATION OF GENERATIVE AI AND AI-ASSISTED TECHNOLOGIES IN THE WRITING PROCESS

In preparing this paper, the authors used DeepL translator for to translate the text, which was originally written in Bulgarian language, and to improve the text's grammar and punctuation. Following the use of this tool/service, the authors have reviewed and edited the content as necessary and take full responsibility for the content of the published article.

REFERENCES

Angelov, I. (2025). *Key leadership functions for achieving long-term competitive advantage in business*. *Proceedings of the International Conference on Business Excellence, 19*(1), 969–980. https://doi.org/10.2478/picbe-2025-0076

Cameron, F., & Kenderdine, S. (Eds.). (2007). *Theorizing Digital Cultural Heritage: A Critical Discourse*. MIT Press.

Dieck, T. M. C., & Jung, T. (2017). *Value of augmented reality at cultural heritage sites: A stakeholder approach*. *Journal of Destination Marketing & Management, 6*(2), 110–117. https://doi.org/10.1016/j.jdmm.2017.03.002

Falk, J. H., & Dierking, L. D. (2013). *The museum experience revisited*. Routledge.

Hassenzahl, M. (2010). *Experience design: Technology for all the right reasons*. *Synthesis Lectures on Human-Centered Informatics, 3*(1), 1–95. https://doi.org/10.2200/S00261ED1V01Y201003HCI008

Hein, G. E. (1998). *Learning in the Museum*. Routledge.

McCarthy, J., & Wright, P. (2004). *Technology as Experience*. MIT Press.

McCarthy, J., & Wright, P. (2005). Putting 'felt-life' at the centre of human–computer interaction (HCI). *AI & Society, 20*(1), 43–56. https://doi.org/10.1007/s00146-005-0011-y

Parry, R. (Ed.). (2010). *Museums in a Digital Age*. Routledge.

Pine, B. J., & Gilmore, J. H. (1999). *The experience economy: Work is theatre and every business a stage*. Harvard Business School Press.

Simon, N. (2010). *The participatory museum*. Museum 2.0.

Tallon, L., & Walker, K. (Eds.). (2008). *Digital Technologies and the Museum Experience: Handheld Guides and Other Media*. AltaMira Press.

Tilden, F. (2007). *Interpreting Our Heritage*. University of North Carolina Press.

Wang, N. (1999). Rethinking authenticity in tourism experience. *Annals of Tourism Research, 26*(2), 349–370. https://doi.org/10.1016/S0160-7383(98)00103-0

Westerman, G., Bonnet, D., & McAfee, A. (2014). *Leading digital: Turning technology into business transformation*. Harvard Business Review Press.