Digital Art Management in Bulgaria

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Abstract. The article presents a study analyzing the attitudes of managers regarding the digitalization of art organizations. The results of an empirical survey are provided, showing the desire for digitalization within these organizations. The research focuses on the digitalization of art management processes and presents a prototype for digital art management. The relevance of the prototype is expressed in the fact that this area remains under-researched and requires further attention and development, especially in the context of rapidly evolving technologies and the growing needs of the contemporary art sector.

Keywords: Digital Transformation, Art Management, Art.

1 Introduction

Transformation is relevant across all fields of activity (Morakanyane et al., 2020). In the context of art, it encompasses the adaptation of both internal processes and creative activities themselves. Transformation also affects the financial framework (Teubner, 2013), leading to changes in organizational behaviour, communication, corporate culture, and the application of leadership strategies (Kane et al., 2017). Digital transformation manifests in four key areas: the implementation of new technologies, changes in value creation, structural modifications, and financial benefits (Matt et al., 2015).
General Benefits of Digitalization for Organizations – the presented findings from research outline the benefits related to business efficiency, management, and market adaptation.

- Innovation in value creation and customer interaction (Berman, 2012).
- Business model updates (Downes & Nunes, 2013; Kotarba, 2018).
- Sustainable solutions for long-term success (Bican & Brem, 2020).
- Cost optimization through one-time investments in digital products.
- Automation of management tasks (correspondence, scheduling, contract, and budget management, etc.).
- Analysis of global art trends and social media data to forecast popular styles and adapt engagement strategies.

Specific Benefits for the Art Sector – the data highlight how digital technologies enhance collection management, creative processes, and audience engagement, while also supporting cultural heritage preservation and providing artists with more time for artistic work.

- Collection management, marketing, and the use of virtual and augmented reality for automatic categorization and searching within art collections.
- Interactivity and audience engagement by providing real-time information about artworks and artists.
- Digital creativity tools, such as generating 3D models of exhibition spaces.
- Utilizing digital technologies for cultural heritage preservation through digitization and the creation of digital content.
- Ensuring more time for artists to focus on creative work.

Challenges – the data highlight challenges such as internal resistance, the need for active participation, leadership and cultural changes, initial technology investments, employee training, and the lack of standardized practices in digital art management.

- Internal resistance from employees and human resource management (Robbins, 2008; Grover & Kohli, 2013; Soule et al., 2016; Alunni & Llambías, 2018).
- The need for active participation from all those affected by the transformation (Matt et al., 2015), as not everyone will readily accept the widespread implementation of digital technologies (Grover & Kohli, 2013).
- Changes requiring leadership skills, business model transformation, and shifts in organizational culture (Kiron & Spindel, 2019; Osterwalder, 2009).
- Initial investments in technology and digitalization of processes (Gray & Rumpe, 2017).
- Employee training for successful integration into the digital world (Bock, 2015).
- Lack of standardized digital art management practices and system compatibility.

2 Exposition of the Investigation

This study addresses the need to adapt art management in Bulgaria to modern realities, including digitalization and the challenge of limited resources. We propose an innovative model based on knowledge and platform-based thinking, aimed at supporting higher education and society. By integrating the five-helix (5H) framework, we seek to foster sustainable growth, entrepreneurship development, the creation of innovation hubs and networks, and the digitalization of art management.

An empirical study was conducted in April 2025 among managers of 25 art organizations from Plovdiv region with the aim of exploring their attitudes toward key skills and competencies of their employees. Data were collected through a standardized questionnaire consisting of eight questions—three related to the characteristics of the organization and five focused on the preferred and desired competencies of the staff.

The study included managers from various types of organizations: 24% represented public institutions, while 76% were from private entities. The fields of activity covered music, dance, and visual arts, as well as arts education. Some participants indicated more than one area of activity. Among the respondents were representatives of non-

governmental organizations, non-profit associations, opera houses, theatres, and other cultural institutions.

Regarding the size of the organizations, the majority (56%) had up to 10 employees, followed by organizations with up to 50 employees (32%) and those with more than 100 employees (12%).

In response to the question "Please assess the extent to which the following competencies are important for your employees," 88% of respondents identified digital competencies as „important "or „extremely important ", while 12% were undecided (Figure 1).

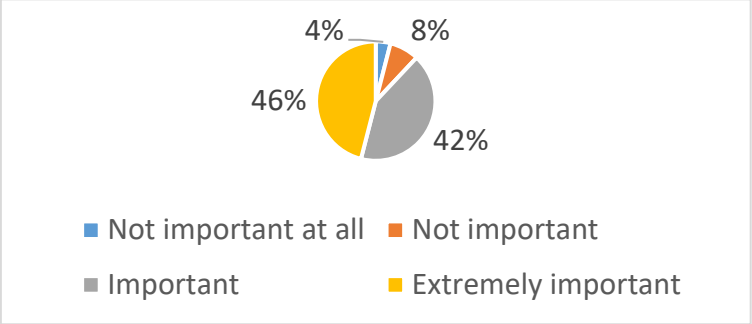

Fig. 1. Degree of importance of digital competence that is important for managers.

Similar results were observed for the item "I find training in the following disciplines useful." Training in digital technologies, presentation skills, and self-presentation was rated as „important "or „extremely important" by 79% of respondents, 17% considered it „not important", and 4% were „undecided".

Regarding attitudes toward training in Artificial Intelligence (AI) for marketers and art managers, 60% of respondents assessed such training as „important" or „extremely important", 16% were „undecided", and 24% considered the use of AI „not important" in their context.

Art managers consider digital competencies essential for staff development and effective management, indicating the need for a digital art management concept.

2.1 Theoretical Basis and Concept Development for Digital Art Management

This study employs methods, techniques, and procedures based on documentary data analysis to develop a prototype concept for digital art management. The next step involves real-world testing, which will likely lead to adaptations and refinements of the initial model. This study presents the first phase of this process, based on empirical and practical evidence.

The concept of Industry 4.0 was formulated by Henning Kagerman in 2011 and later adapted in the U.S. through the Industrial Internet Consortium. It is based on the integration of physical machines, embedded systems, networked sensors, and software to optimize forecasting, control, and planning of business processes.

In the European Union (EU), a strong commitment to the development of the digital economy is demonstrated, with member states' progress measured through the Digital Economy and Society Index (DESI). This index includes five key indicators: connectivity, human capital, internet usage, integration of digital technologies, and digital public services. Despite observed progress in providing online public services, Bulgaria continues to lag behind in digitalization and the use of e-governance compared to other EU countries. The European Commission assesses the level of innovation in Bulgarian businesses as insufficient compared to the EU average.

José Manuel Montero Guerra, Ignacio Danvila-del-Valle, and Mariano Méndez-Suárez examine the impact of digital transformation on talent management, using a digital maturity index with three main indicators: business models, organizational culture, and leadership. They formulate two key hypotheses: H2.1: Digital transformation influences talent attraction; H2.2: Digital transformation influences talent retention.

The study emphasizes the need for a more detailed examination of the concept of "talent" and the separation of talent attraction and retention processes into distinct research areas. Additionally, the authors suggest studying companies under-going digital transformation to analyze the role of the human factor in this process (José Manuel Montero Guerra, Ignacio Danvila-del-Valle, and Mariano Méndez-Suárez, 2023).

This study highlights the necessity of systematically introducing digital technologies in art management, which will contribute to better process monitoring, efficient resource allocation, and the sustainable development of Bulgaria's cultural sector.

The vision for the digital transformation of art management in Bulgaria aligns with the strategic framework outlined in the „Digital Transformation of Bulgaria for the Period 2020–2030". Additionally, „Unified Standards for the Digitization of Museum, Library, and Audiovisual Content" have been developed under a project funded by the Recovery and Resilience Plan. These standards are published on the website of the Ministry of Culture. Examples from scientific research are also presented.

It is necessary to make a clear conceptual distinction between „digital art", „art presented in digital form", and „digital art management". Digital art refers to works created using digital technologies that are an integral part of the creative process. In contrast, art presented in digital form includes traditional or analog works that have been digitized for the purposes of documentation, dissemination, or exhibition.

Paul (2015), who discusses the use of Digital Art Management (DAM) systems, has examined the evolution of digital art and its management in artistic practice and blockchain technologies to maintain control, monetize, and protect digital works. Practical guidance is offered in the Routledge Handbook for New Digital Practices (Dowden, 2020; Richard & Ippolito, 2014), which analyzes how cultural institutions are being transformed through digital technologies.

Galleries and museums use digital management to catalog, preserve, and exhibit digital artworks, including tracking provenance through blockchain (Richard & Ippolito, 2014). Giannini and Bowen (2019) trace the digital evolution of the museum and its

audience in a world increasingly shaped by digital life. The developed ontology of Bulgarian dance folklore can be cited as an example of digitization of cultural and historical heritage (Kazashka et. al, 2024).

NFT platforms like OpenSea and Rarible apply digital art management to ensure authenticity, manage royalties via smart contracts, and provide market analytics (Wang, Qin, et al., 2021). Serada (2022) explores the legal and financial dimensions of blockchain in the art world.

Bearman and Trant (1998) emphasize the importance of metadata and authenticity in digital art. Mazzone and Elgammal (2019) investigate AI's role in creating and interpreting digital art. Key preservation challenges and file migration strategies are analyzed by Rothenberg (1999), while Depocas, Ippolito, and Jones (2003) highlight the need for critical dialogue to contextualize contemporary digital art.

The „Digital Transformation of Bulgaria for the Period 2020–2030“addresses the cultural sector, emphasizing the preservation and promotion of cultural heritage and the establishment of unified digitization standards. However, it lacks a strategic focus on the digital transformation of cultural and arts management processes. In this study, “digital art management“ refers to the evolving context of finance, marketing, and innovation management within the cultural sector, which requires tailored approaches for different types of art organizations. The digitization of managerial processes is essential for enhancing operational efficiency and administrative workflows. For instance, as of 2025, many cultural funding programs still require paper-based project submissions, indicating delayed digital integration. The „Unified Standards for the Digitization of Museum, Library, and Audiovisual Content“ highlight best practices across Europe, yet the absence of digital marketing strategies and trained managers poses a risk of delay or distortion in the digitization process. Despite growing evidence that managers play a critical role in enabling digital transformation (Wrede, Velamuri, & Dauth, 2020), their role remains underexplored in academic discourse. In this context, the current study proposes the development of a prototype for digital art management.

3 Results

The creation of a concept for transformation in arts management aims to provide a modern approach to teaching "Arts Management" and support the state policy for the digitalization of culture. The transformation requires flexible models that reflect on the economic and social processes in art organizations and society. Bulgaria needs to encourage digitalization by providing infrastructure and training for professionals to avoid falling behind new trends. This concept, based on the Fivefold Spiral model, supports art managers by stimulating the implementation of digital technologies, enhancing competitiveness, and attracting investments. It creates conditions for the integration of digital standards that ensure reliability, security, and operational compatibility. The development of digital arts management requires widespread promotion and the creation of a regulatory and methodological framework. The prototype of the concept aims to optimize decision-making through real-time analysis, big data processing, and more effective responses to emerging issues. The inclusion of digital technologies such as

the "Internet of Things" virtual and augmented reality, autonomous systems, cloud technologies, cybersecurity, and machine learning will allow for more flexible management of art organizations.

These technologies will contribute to balanced development, sustainability, cost optimization, and a reduction in the ecological footprint. Our aims are to develop policies and mechanisms for the development of digital arts management in Bulgaria, tailored to the needs of the sector. It is necessary to create educational and scientific initiatives, pilot projects, and implement best practices for the institutional adoption of a digitalization strategy in culture.

By 2030, the concept foresees the holding of meetings with focus groups and analysis of art organizations to identify gaps, recommendations, and directions for development. The main activities will be formulated based on the needs of the sector, and success indicators will determine the effectiveness of the concept. The Fivefold Spiral, covering science, society, government, business, and ecology, serves as a framework for analysis and action.

Digitalization in arts management requires a willingness for change, readiness to adapt, investments in technology, and training. The process is not quick, but it is expected to make the work of art managers easier by automating routine tasks and providing more time for creative processes. Subsequent analyses will help to correct gaps and share best practices, which is key to the success of the concept presented in Figure 2.

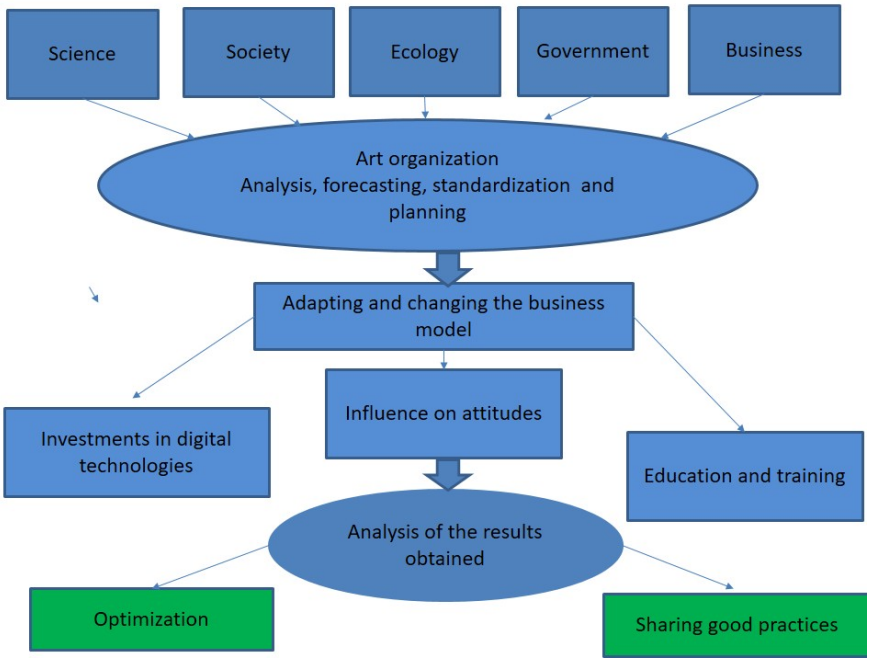

Fig. 2. Prototype of a Digital Art Management Concept.

4 Discussion

A methodological framework has been developed to assess the economic impact of creative industries in Bulgaria, considering their specific characteristics. The cultural and creative sector is divided into three subsectors and thirteen domains: visual arts, performing arts, crafts, cultural heritage, music industry, publishing, print media, film industry, radio, television and new media, software and video games, design, architecture, and advertising (Kazashka et al., 2018). In this context, the proposed prototype acts as a basic framework. It should be tested and further enhanced based on the specific characteristics of each art organization.

5 Conclusions

Digital art management is an emerging and dynamic field that spans individual artistic practices and the strategic governance of cultural institutions. By integrating digital tools such as DAM systems, blockchain, and artificial intelligence, it facilitates the organization, protection, and monetization of digital art. The aim of this study is to develop a conceptual framework to support art managers in adapting to technological and socio-economic transformations. The application of networked business models and cyber-physical systems holds the potential to transform the cultural ecosystem and influence societal development.

This research contributes to a relatively underexplored area in academic discourse, with the developed prototype offering a foundation for future studies and practical implementation.

Acknowledgements.

The authors express their gratitude to the project "Transformation: A Network for a Sustainable Future through the Exchange of Experience and Knowledge" (Project No. KP-06-COST-7/2024), funded by the Bulgarian National Science Fund and Project “Sustainable Development of the Center of Plant Systems Biology and Biotechnology (CPSBB) Plovdiv" No BG16RFPR002-1.014-0003-C01 project, financed by the European Regional Development Fund through the Bulgari-an Operational Programme PRIDST.

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Received: March 15, 2025
Reviewed: May 02, 2025
Finally Accepted: May 15, 2025