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Role of Human Resource Development in Shaping Innovation in Art of the 21st Century

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Abstract

This article examines the role of human resource development in shaping an innovative environment for art in the context of accelerating digitalisation and global transformation in the 21st century. The relevance of the topic arises from the transition of creative industries from predominantly traditional forms of artistic activity toward technology-enabled and interdisciplinary models in which human capital becomes a central driver of new artistic forms, organisational adaptation, and wider socioeconomic development. Drawing on 32 scholarly and institutional sources published mainly between 2021 and 2025 and accessed through academic repositories, publisher platforms, and institutional websites, the study explores the theoretical foundations, mechanisms of influence, and current practices of human resource management in the artistic and creative sectors. The findings indicate that strengthening human potential through competence-based development, digital learning, gamification, data-informed HR practices, ar-

tificial intelligence, creative clusters, and continuous professional development can support innovation capacity when these tools are aligned with artistic goals and organisational needs. Particular attention is given to developments in Russia while also drawing on international evidence concerning human capital, productivity, arts management, skills transformation, and workforce development. The article further proposes practical recommendations concerning competence-based assessment, investment in lifelong learning, interdisciplinary collaboration, and international cooperation. Rather than treating technology as a substitute for artistic judgement, the study concludes that sustainable innovation in the arts depends on the combined development of creative, digital, analytical, collaborative, and adaptive capabilities.

Keywords: innovative arts environment, creative industries, human capital, digital transformation, human resource management, creativity in the arts

1. RESEARCH RELEVANCE

The present period is marked by rapid digitalisation across almost all spheres of public life, a transformation that is particularly visible in cultural and creative activity. Art is no longer limited to aesthetic self-expression; it increasingly participates in an innovation economy in which human potential, organisational capability, and technological literacy play important roles. The development of human resources, the strengthening of professional competences, and the adaptability of specialists influence the ability of artistic organisations to adopt advanced technologies, create original forms of expression, and contribute to longer-term socio-economic development. The World Economic Forum reports that labour-market transformation through 2030 will be substantial: 170 million jobs are projected to be created and 92 million displaced, while employers expect approximately 39% of workers' existing core skills to change or become outdated over the 2025–2030 period [1]. These projections reinforce the importance of combining technological skills with human capabilities such as analytical thinking, creative thinking, resilience, flexibility, collaboration, and lifelong learning.

The relevance of the chosen topic is driven by several interconnected factors. First, digital platforms are transforming the processes through which works of art are created, distributed, experienced, and monetised, encouraging movement from exclusively traditional practices toward interactive, hybrid, and immersive formats. Second, research on creative industries increasingly treats creativity, knowledge, and innovation as resources for territorial and socio-economic development rather than as peripheral cultural activities [2]. Third, human capital acts as a central driver of innovation in the artistic sphere, where conventional personnel-management approaches are increasingly supplemented by digital tools for learning, competence assessment, talent development, collaboration, and workforce planning. However, the mechanisms linking human resource development with the formation of an innovative artistic environment remain insufficiently integrated in the literature. This gap can weaken the ability of cultural organisations to translate technological availability into sustained creative and organisational innovation. Accordingly, this study aims to identify concrete ways in which targeted human resource development can strengthen innovation activity in the arts.

The scientific basis of the topic includes a broad range of studies addressing both the development of creative industries and specific aspects of human resource management in the digital era. Russian scholars pay considerable attention to the socio-economic importance of creative sectors. Yu.N. Gambeeva and co-authors emphasize that the creative sector serves as a strategic resource for the innovative development of territories, contributing to improvements in urban environments and stimulating the generation of new ideas [2]. D.S. Degtyarev [3] develops an incremental model of the evolution of creative industries, where the gradual accumulation of innovations is directly linked to the level of professional training of specialists. M.V. Dorogina and T.A. Alabina [4] consider the human potential of the creative economy as a strategic asset of regions, determining their long-term competitiveness.

An important contribution to the study of human resource management transformation is the monograph by I.N. Kalinovskaya. The author analyses changes in HR systems under digitalisation, including the integration of digital personnel data, automation, and technology-supported competence assessment [5, p. 17]. The central implication for the present study is that digital transformation is not simply the replacement of paper procedures with electronic ones; it also changes how organisations collect workforce information, develop employees, and make managerial decisions. Yu.F. Khatkhanova and A.I. Korygin [6] examine the impact of digital tools on artistic creativity and emphasise that contemporary digital instruments alter both the technical process and the practical conditions under which artistic work is produced. Their discussion illustrates why workforce development in art must address not only traditional artistic mastery but also the capabilities required to select, evaluate, and creatively control digital tools.

N. Kirillova and E. Orlova [7] highlight the role of creative clusters in the development of urban cultural infrastructure, where human potential can act as a catalyst for innovative solutions. L.A. Kravchenko et al. [8] examine human-capital development under creative and digital transformation and emphasise the need for continuous professional development. V.A. Matsko [9] considers creative industries an important basis for the formation of innovative space, while I.V. Muskhanova and A.D. Khadzhimuratova [10, p. 45] focus on personal development in art as a foundation for creative achievement. E.V. Popova and A.A. Beibutova [11, p. 382] describe the evolution of HR-management technologies within the digital economy. M.V. Prokopeva [12] discusses current trends in Russia's creative industries; S.D. Prokhorenko and A.V. Pelashenko [13] analyse innovation processes in arts management under digitalisation; and E.N. Pyatsheva [14] considers regional dimensions of creative-industry development. M.A. Teplov [15] interprets creative human resources as an important factor in modern economic development. Particularly relevant to the HR dimension of the present study, L.N. Ustinova and A.O. Arakelova [16] examine human resource management technologies based on a digital approach and emphasise continuous professional growth and the development of digital competence.

International literature complements the Russian scholarship and broadens the management perspective. R.J. Ahmad [17] discusses the relationship between human resource development, innovation, and organisational development. W.J. Byrnes, in the sixth edition of *Management and the Arts*, examines management practice in arts organisations, including staffing, leadership, organisational culture, technology, and operational adaptation [18]. E. Cammeraat, L. Samek, and

M. Squicciarini [19] provide OECD evidence linking innovation, training, human capital, and labour productivity across industries. D.W. Carito et al. [20] propose human resource development strategies in a creative-industry setting, while J.S. Doolittle [21] and L. Meriweather [22] address leadership and innovation in relation to workforce capability. S. Duca [23] highlights creativity and creative human capital as resources for knowledge-economy development. The European Commission [24] treats culture, creativity, and inclusive society as areas of research and policy attention within Horizon Europe. R. Hakiki et al. [25] and F. Kahfi [26] discuss HRD innovation, employee creativity, technology-enabled learning, and talent development. Widiyanto and Parwoto [30] provide additional evidence on the relationship between human resource development and employee performance in an organisational setting, although their study is not specific to the arts. N. Kohtake [27] draws attention to international cooperation in workforce development and innovation. Institutional reports from McKinsey & Company, Tokio Marine Holdings, the World Bank, and the World Economic Forum provide additional evidence on workforce transformation, human-capital development, skills change, and organisational responses to technological disruption [1, 28, 29, 31].

Despite the substantial number of publications on related topics, the specific problem addressed in this article has not yet been examined comprehensively. Most research either focuses on creative industries in general [2–4] or examines broader issues of digital transformation in human resource management [5, 32], without giving sufficient attention to the intersection of these areas within the innovative environment of art in the 21st century. International studies [19, 20] emphasize productivity and workforce development strategies, but rarely adapt their findings to the specifics of the artistic sphere. In addition, there is still no unified methodological framework for assessing the contribution of human resource development to the formation of an innovative artistic environment. This study seeks to address this gap by combining theoretical approaches with practical evidence.

The objective of this study is to explore the role of human resource development in shaping an innovative environment in art in the 21st century. To achieve this objective, the study addresses the following tasks: 1) to analyze the theoretical foundations of the relationship between human capital and innovation in the artistic sphere; 2) to identify the main mechanisms through which human resource development influences the innovation environment; 3) to assess current practices of applying digital technologies in human resource management within creative industries; 4) to formulate practical recommendations for improving the effectiveness of these processes.

2. METHODOLOGY

The study uses general scientific methods, including analysis, synthesis, comparison, and generalisation. A systems approach is applied together with qualitative content analysis of academic literature, professional publications, books, conference materials, and reports from international organisations. The source base comprises 32 works published mainly between 2021 and 2025 and accessed through academic repositories, publisher platforms, journal websites, and institutional sources. The review focuses on material relevant to creative industries, arts management, human capital, human resource development, digital transformation, innovation, workforce skills, and international cooperation. The study is interpretive rather than meta-analytic: it does not pool effect sizes, and it does not claim that all included sources use identical definitions or research designs. Tables and a figure are used to structure the synthesis and to connect the reviewed evidence with the article's practical recommendations.

3. MAIN DISCUSSION

Human resource development provides an important foundation for an innovative artistic environment under contemporary conditions. In the digital era, the competence profile of artists, managers, curators, designers, producers, and other creative professionals is changing alongside the tools they use. Kalinovskaya [5, p. 17] emphasises that digital transformation can automate routine HR processes and improve the use of workforce information. In artistic organisations, the practical value of such transformation lies not in automating creativity itself, but in reducing administrative friction, supporting targeted learning, and creating more time and organisational capacity for creative work. This distinction is important because artistic innovation still depends on human judgement, interpretation, experimentation, and authorship even when digital tools are heavily involved.

Innovations in human resource management can also support creativity by changing how people learn, collaborate, and receive feedback. L.S. Kerber and A.I. Tikhonov [32, p. 64] discuss gamification and e-learning among contemporary HR-management innovations, while Ustinova and Arakelova [16] emphasise digital competence and continuous professional growth. In creative clusters, Kirillova and Orlova [7, p. 27] identify human capital as an important resource for territorial and cultural development. The principal HR innovations discussed in the reviewed literature and their potential application in artistic organisations are summarised in Table 1.

Table 1. Key human resource management innovations relevant to creative industries (author synthesis based on [32, p. 62] and [16]).

Type of innovation	Advantages	Limitations	Examples of application in art
Gamification	Increased engagement and motivation	Potential resistance from staff	Assessment of creative skills through game-based scenarios
E-learning	Flexibility and personalized learning paths	High initial costs	Mastering digital art software
Big data analysis and AI	Real-time competence assessment	Data privacy risks	Personalized talent development programs
Digital HR platforms	Faster recruitment, onboarding, and personnel management; transparency in HR processes	The need to train employees; potential issues with system integration	Managing project teams in theaters, museums, galleries, and production centers
Remote and hybrid work models	Expanding the geographic scope of specialist recruitment; resource savings; convenience for project-based employment	Reduced in-person interaction; increased complexity in team coordination	Remote work for designers, curators, SMM specialists, and digital artists
Talent management systems	Identifying and retaining high-potential employees; developing individual career paths	Require long-term support and ongoing analytics	Building a talent pipeline in theater, music, and exhibition organizations
HR analytics	Supporting informed staffing decisions; improving the accuracy of forecasts	Requires data analysis skills; risk of underestimating intangible factors	Analyzing creative staff turnover, training effectiveness, and employee engagement

Human capital is also associated with productivity and innovation capacity. Cammeraat, Samek, and Squicciarini [19] find positive relationships among innovative output, training, skills, organisational capital, and labour productivity across industries. Their evidence is not specific to artistic organisations, so it should not be interpreted as a direct estimate of productivity effects in the arts. Nevertheless, the mechanism is relevant: investment in skills and training can expand the range of tasks that organisations are able to perform and can increase their capacity to absorb new technologies. In the artistic sphere, comparable capability development is visible in virtual exhibitions, digitally mediated performance, generative and assistive AI workflows, interactive installations, data-informed audience engagement, and hybrid forms of artistic production.

The World Economic Forum forecasts continued disruption in workforce capabilities through 2030. Its 2025 report estimates that approximately 39% of workers' existing core skills will change or become outdated by 2030 and that, if the global workforce were represented by 100 people, 59 would require reskilling or upskilling during the period [1]. Analytical thinking remains one of the most widely demanded core skills, while AI and big data, technological literacy, creative thinking, resilience, flexibility, and lifelong learning are among the capabilities expected to increase in importance. For creative organisations, these findings support a balanced skills-development strategy rather than a narrowly technical one. Table 2 presents an author synthesis of priority capabilities relevant to an innovative artistic environment.

Table 2. Priority skills for an innovative artistic environment in the 21st century (author synthesis informed by [1, 19, 20]).

Skills	Illustrative synthesis weight, %	Examples of application in Artistic Practice
Creativity	28	Developing new artistic concepts and formats
Digital literacy	25	Working with VR/AR technologies and generative AI
Analytical thinking	22	Analyzing audience preference data
Emotional intelligence	15	Creating empathetic interactive projects
Interdisciplinary collaboration	10	Joint projects with engineers and programmers
Communication skills	9	Presenting projects, negotiating with partners, and participating in professional discussions
Adaptability	8	Quickly adapting to new technologies and formats of artistic practice
Project-based thinking	7	Planning artistic initiatives, allocating resources, and managing deadlines
Critical thinking	5	Evaluating artistic decisions, analyzing information, and selecting optimal tools
Cross-cultural competence	4	Working on international artistic projects and creating inclusive practices

Note. The percentage values are author-defined synthesis weights used to compare relative emphasis across the selected capabilities; they are not percentages reported directly by the cited sources.

The regional characteristics of creative-industry development in Russia are discussed by E.N. Pyatsheva [14] and M.V. Prokopenko [12], who draw attention to uneven territorial development and the role of organisational and regional support mechanisms. Creative clusters can partially address fragmentation by concentrating institutions, skills, networks, and opportunities for collaboration, but their effectiveness still depends on the quality of human resources and management. International evidence presented by Byrnes [18] and Carito et al. [20] likewise indicates that strategic workforce development is a continuing requirement in creative organisations. Against this background, Figure 1 presents the broader World Economic Forum projection concerning the share of workers expected to require training or reskilling by 2030; the figure is used as labour-market context rather than as a statistic specific to the arts sector.

The integration of artificial intelligence into artistic processes expands technical possibilities but also requires new approaches to specialist training, authorship, evaluation, and responsible use. Artists increasingly work with tools capable of generating or transforming visual, textual, audio, and multimodal material rapidly, while professional value continues to depend on conceptual judgement, selection, refinement, contextual understanding, and ethical responsibility. These technologies can increase production speed and widen access to audiences through digital platforms, but they also intensify the need for continuous learning because tools and workflows evolve quickly. International cooperation initiatives, including those discussed by Kohtake [27], can support knowledge exchange, shared training, and workforce adaptation by exposing specialists to alternative practices, technological standards, and interdisciplinary methods.



Figure 1. Projected share of the global workforce requiring reskilling or upskilling by 2030 (based on World Economic Forum data, [1]).

The formation of an innovative environment in art therefore requires systematic investment in human resources rather than isolated technology purchases. A competence-based approach, continuous professional learning, carefully governed digital tools for talent development, and favourable conditions for interdisciplinary interaction can provide the organisational foundation for successful transformation. Human resource strategy should also recognise that innovation depends on combinations of capabilities: creative judgement without digital literacy may limit access to new forms of production, whereas technical proficiency without artistic, critical, or collaborative competence may produce novelty without durable cultural value. The strongest development model is therefore integrative and treats human capital, technology, organisational culture, and artistic purpose as mutually reinforcing elements.

4. CONCLUSIONS

Human resource development is a key factor in shaping an innovative environment for art in the 21st century. The reviewed literature indicates that digital transformation, competence development, creative clusters, leadership, continuous learning, and international cooperation can strengthen the capacity of artistic organisations to adopt new technologies and develop new forms of cultural production. At the same time, the evidence does not support treating technology alone as the cause of artistic innovation. Sustainable transformation requires organisations to connect digital tools with creative judgement, professional development, ethical responsibility, organisational culture, and opportunities for interdisciplinary collaboration. The practical recommendations arising from the review include implementing transparent competence-based assessment, increasing investment in continuous learning and reskilling, developing digital and analytical capabilities alongside creative skills, strengthening collaboration across artistic and technical disciplines, and expanding international exchange. Future research should move beyond literature-based synthesis by examining specific artistic institutions empirically, comparing different types of creative organisations, evaluating the effects of digital HR interventions over time, and developing validated indicators that link human resource development with measurable dimensions of innovation activity. Such research would provide a stronger basis for determining which HR practices create lasting artistic and organisational value and under what institutional conditions those effects occur.

CONFLICT OF INTERESTS

The author declares no conflict of interests.

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DATA AVAILABILITY

The literature set and supporting review materials used in this study are available from the author upon reasonable request.

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