



Identifying Factors Affecting the Digital Competencies of Sports Organization Managers, With Emphasis on Artificial Intelligence

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Abstract

The aim of the present study was to identify the factors affecting the digital competencies of sports organization managers with an emphasis on artificial intelligence (AI). The strategy used in this study is grounded theory. Therefore, the present study was applied in terms of purpose. Through semi-structured interviews with experts and opinion leaders, including managers, specialists, and experts in sports organizations, supplementary information was collected to design a model of digital competencies of sports organization managers with an emphasis on artificial intelligence, and then this information was coded and analyzed. The research findings showed that four main concepts were identified in the form of eight sub-concepts including AI and data knowledge and analysis (AI knowledge and fundamentals, data analysis, and statistical literacy); digital application and technology (AI applications and strategy in sports, technical literacy, and digital tools); digital transformation leadership and innovation (systems thinking and digital innovation, digital transformation leadership and management); and digital ethics, security, and communication (ethics, security, and digital responsibility, communication skills, and digital collaboration). Finally, it can be concluded that the digital competencies of sports organization managers in the context of artificial intelligence are a set of multifaceted knowledge, skills, and attitudes that go beyond mere technical skills. These competencies include the ability to understand and analyze data and artificial intelligence, effectively utilize digital technologies in all aspects of the organization, lead innovation and transformation in the organization, adhere to ethical and security principles, and develop communication skills in the digital space.

Introduction

The Fourth Industrial Revolution, driven primarily by digital transformation, has profoundly reshaped the nature of work, organizational structures, leadership practices, and human resource management. In this context, organizations are increasingly required to develop digital capabilities that enable them to remain competitive in a rapidly evolving environment. Among the most affected sectors, sports organizations face unique challenges due to their complex ecosystems, diverse stakeholders, and growing reliance on data-driven decision-making. Digital transformation in sports organizations extends beyond technological adoption and fundamentally represents a human-centered challenge, emphasizing the role of managers as key agents of

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change. Consequently, the development of digital competencies among sports managers has become a strategic necessity.

Digital competence is a multidimensional construct encompassing knowledge, skills, attitudes, and strategic capabilities that enable individuals to use digital technologies effectively, critically, ethically, and creatively. With the rapid emergence of artificial intelligence (AI), these competencies have expanded to include AI literacy, data analytics, ethical awareness, and digital leadership. Despite the strategic importance of these competencies, prior research indicates a significant gap between the current and desired levels of digital competencies among sports managers. Moreover, applied and empirical studies focusing specifically on AI-oriented digital competencies in sport management remain limited. Therefore, the primary aim of this study was to qualitatively explore the factors influencing the digital competencies of sports organization managers, with a particular emphasis on artificial intelligence.

Methods and Materials

This study adopted a qualitative research design based on the grounded theory methodology, following the Glaserian approach. From a practical perspective, the research was applied in nature and sought to generate a conceptual model grounded in empirical data. Data were collected through semi-structured interviews with experts and practitioners, including faculty members in sport management and computer science, as well as experienced managers and specialists working in sports organizations across the country. The sampling strategy was theoretical and purposive. Initial participants were selected based on their expertise and experience in digital transformation, artificial intelligence, and sport management. Sampling continued until theoretical saturation was achieved, resulting in a final sample of 21 participants. Interviews lasted an average of 30 minutes, and all interviews were recorded and transcribed verbatim.

Data analysis was conducted through open, axial, and theoretical coding. During open coding, 115 initial codes were identified, which were refined and reduced to 91 meaningful indicators after eliminating redundancies. These indicators were then organized into eight conceptual categories during axial coding. Through constant comparative analysis and iterative review, a central phenomenon emerged, representing the core concern of participants: the interrelationship between digital competencies and the intelligent use of artificial intelligence in sports decision-making. To enhance the trustworthiness of the findings, member checking was employed, and an audit trail strategy was used to ensure reliability and validity.

Results and Discussion

The analysis resulted in the identification of four main categories comprising eight subcategories that collectively form the conceptual model of digital competencies for sports managers in the era of artificial intelligence. The first main category, AI and Data Knowledge and Analysis, includes foundational knowledge of artificial intelligence and data analytics literacy. Participants emphasized that managers must understand key AI concepts such as machine learning, deep learning, and data-driven modeling, while also possessing the ability to interpret analytical outputs and use them in evidence-based decision-making.

The second category, Digital Applications and Technology, reflects the practical utilization of AI and digital tools in sports contexts. This includes applications in performance analysis, talent identification, fan engagement, marketing, event management, and operational optimization. Technical literacy and familiarity with digital platforms, cloud computing, wearable technologies, and data visualization tools were highlighted as essential competencies bridging theory and practice.

The third category, Leadership and Innovation in Digital Transformation, underscores the strategic and cultural dimensions of digital change. Participants stressed that effective digital transformation requires visionary leadership, systems thinking, innovation capability, and the ability to manage resistance to change. AI was perceived as a powerful enabler for organizational

learning, predictive planning, and strategic innovation when aligned with leadership competencies.

The final category, Ethics, Security, and Digital Communication, addresses the critical importance of ethical responsibility, data security, and effective digital collaboration. Ensuring privacy protection, algorithmic fairness, cybersecurity awareness, and transparent communication were identified as prerequisites for sustaining trust among athletes, fans, and other stakeholders. Additionally, digital communication and collaboration skills were considered vital for managing virtual teams and complex stakeholder networks.

Conclusion

This study concludes that the digital competencies of sports organization managers in the context of artificial intelligence are inherently multidimensional and extend far beyond technical skills alone. These competencies encompass AI and data literacy, effective use of digital technologies, leadership and innovation in digital transformation, and strong ethical, security, and communication capabilities. The proposed conceptual model provides a comprehensive framework for understanding and developing these competencies in sport management.

From a practical standpoint, the findings offer valuable insights for policymakers, sports organizations, and educational institutions seeking to design competency-based development programs aligned with AI-driven transformation. By fostering these integrated competencies, sports managers can better navigate the complexities of the digital era, leverage artificial intelligence responsibly, and lead their organizations toward sustainable competitive advantage.

Keywords: artificial intelligence, digital innovation, competencies, sport managers

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