



Artificial Intelligence and Human Capital in The Context of Economic Security and Sustainable Development of Tourism

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ABSTRACT: In the context of increasing global economic instability, accelerated digitalization and increased security requirements, the tourism industry is faced with the need for a radical transformation of management models and the focus of this study is the interaction between intelligent technologies and human capital in the context of risk management, security and organizational resilience. For this purpose, the role of artificial intelligence and human capital as key factors for economic security and sustainable development of tourism is analyzed. Through a theoretical and conceptual approach, the study explores good practices for the integration of artificial intelligence with human capital, contributing to stability, competitiveness and long-term sustainability in the tourism industry. The article argues that sustainable tourism development requires a balanced approach, in which artificial intelligence serves as a supporting tool, while human capital retains its central role in strategic decision-making, ethical management and security management in tourism development. Through a theoretical and conceptual approach and a study of good practices.

KEYWORDS: Artificial intelligence, human capital, tourism, economic security, sustainable development

INTRODUCTION

In the era of the Fourth Industrial Revolution, the integration of advanced technological solutions has become a mandatory condition for maintaining global competitiveness, and the tourism industry, as one of the most dynamic sectors of the global economy, is undergoing a fundamental transformation driven by the widespread implementation of artificial intelligence (AI). The dynamic digitalization of the contemporary economy places global tourism before a fundamental challenge, namely how to integrate the power of artificial intelligence (AI) without compromising the authenticity of the offered products and services and while guaranteeing economic security. The use of artificial intelligence in tourism is a topic that is becoming increasingly relevant within the global tourism industry, particularly with regard to the future of human labor, ethical challenges, and the dynamic changes in the global tourism market, characterized by increased uncertainty, technological risks, and the need for sustainable management solutions.

In this context, the present paper explores the thesis that sustainable development can only be achieved through a hybrid model in which artificial intelligence (AI) optimizes processes, while human capital remains the leading factor in strategic management and ethical control. The aim is to define a framework for integration that guarantees the competitiveness and long-term stability of the industry, since the synergy between technological solutions and human capital is becoming a prerequisite for ensuring economic security and sustainable development within the tourism industry. In this regard, artificial intelligence (AI) is emerging as a tool for process optimization, risk forecasting, and enhanced security, while human capital remains the key factor for its effective implementation and control.

CONCEPTUAL FRAMEWORK OF THE ISSUE

The conceptual framework of the study is based on an integrated approach that examines tourism as a complex socio-economic system in which three main components interact: first, human capital (knowledge, skills, innovation potential, managerial culture, and ethical responsibility); second, artificial intelligence (automation, algorithmic decision-making, and database analysis); and third, economic security and sustainability (stability, adaptability, crisis management, and risk management). The interaction between these components forms the foundation of sustainable tourism models capable of responding to external threats and internal challenges¹.

¹ Baggio, R., & Cooper, C. (2019). *Tourism, Technology and Systems*. Oxford: Goodfellow Publishers.



On the one hand, human capital theory emphasizes the importance of investments in education, training, and staff development as the basis for economic growth and competitiveness, and in the context of tourism, human capital acquires a specific dimension due to the high degree of customer interaction and the need for emotionally oriented services. On the other hand, artificial intelligence (AI) is viewed as a factor for increasing efficiency, but also as a source of new risks. In this regard, the thesis is advanced that technologies do not replace human capital, but rather transform its role, and in the tourism sector this means a transition from routine activities toward analytical, strategic, and creative functions².

In this context, human capital is becoming a strategic factor for the sustainable development of tourism, and accordingly, the relevance of the studied topic is determined by the need for new management paradigms requiring the integration of the innovative potential of artificial intelligence (AI) with sustainable development, since sustainability today requires not only environmental responsibility but also socio-economic resilience achieved through balanced interaction between technological efficiency and highly qualified human capital.

In this sense, the main objective of the present paper is to examine the mechanism through which the synergy between artificial intelligence (AI) and human capital contributes to strengthening economic security and ensuring the long-term sustainability of the tourism product, since tourism is among the sectors most vulnerable to economic, social, health, and cyber threats. The paper supports the thesis that artificial intelligence (AI) should be regarded as a catalyst for human capabilities rather than as their substitute, especially in the processes of strategic decision-making and crisis management. Accordingly, the objective is focused on examining the functional relationships and mechanisms of interaction between the technological capacity of artificial intelligence and the professional competencies of human capital, by analyzing their specific roles in ensuring economic security, minimizing operational risks, and creating added value for achieving long-term sustainability in the tourism industry.

A number of European programmes for the sustainable development of tourism lay the foundations for an integrative approach which has not yet been institutionalized in most national strategies, and for this reason the existing limitations of the study are associated with the fact that the analysis is based primarily on secondary sources—scientific literature, policies, and best practices. The study itself is aimed at the conceptual and analytical interpretation of the problem, as the objective is not to measure specific indicators, but rather to outline a systemic model for integration.

In practice, the problem lies in the conflict between the pursuit of maximum economic efficiency through the automation of artificial intelligence (AI) and the need to preserve the human factor as a guarantor of quality, ethics, and security. The main risks fall into three directions: loss of uniqueness (standardization of services and the disappearance of “hospitality” as a human relationship); technological dependence (risk of system failures and cyberattacks); and replacement of human capital with automated technologies (risk of job losses). Existing solutions are directed toward the creation of conceptual models for balanced integration and the development of hybrid security systems combining the predictive capabilities of artificial intelligence (AI) with the critical thinking of the human manager for the assessment of geopolitical and social risks.

The expected results include: the formulation of theoretical models of interaction between human capital and artificial intelligence (AI); identification of key competencies and management mechanisms guaranteeing economic security and supporting sustainable mobility; and the development of models for synergy between artificial intelligence (AI) and human capital. The approach formulated in this way allows the integration between human and artificial intelligence (AI) to be examined not as an abstract concept, but as a dynamic process of joint interaction determining the future sustainable development of tourism.

For this purpose, the research methodology is based on an analytical, systemic, and comparative approach, documentary analysis, synthesis of good European practices, and a critical review of scientific literature, using an interdisciplinary approach combining economic, social, and managerial perspectives.

ECONOMIC SECURITY AGAINST RISK IN THE TOURISM INDUSTRY

Economic security in tourism is emerging as a key scientific and managerial challenge under conditions of global instability, accelerated digitalization, and increasing complexity of risks, since its functioning is directly dependent on external factors such as

² Brynjolfsson, E., & McAfee, A. (2017). *The Second Machine Age*. New York: W.W. Norton.



economic conditions, geopolitical stability, climate change, and technological threats³, which necessitates the consideration of economic security as a dynamic process of risk management and resilience.

From a theoretical perspective, economic security is defined as the ability of economic entities and systems to maintain stable functioning, minimize losses in adverse events, and recover effectively after crises⁴, which forms the basis of sustainable development. In the tourism business, it is viewed as a state of optimal use of resources for protection against external and internal threats, since fluctuations in demand and consumer confidence can lead to rapid and significant economic disruptions⁵. This approach requires: first, analysis of the internal and external factors that may affect the stability of tourism activities; second, institutional frameworks and policies that support business continuity; and third, strategies for innovation and digital transformation that not only improve competitiveness, but also the ability of firms to withstand crises. In this sense, economic security is regarded as a multidimensional concept that includes the financial stability of businesses, the protection of jobs, the sustainability of destinations, and the ability of tourism enterprises to restore their operations after adverse events.

According to studies by the World Tourism Organization, digital transformation is critical, but it must be aligned with the cyber resilience of destinations⁶, since when algorithms manage dynamic pricing and resource allocation, the risk of systemic errors increases, which requires strategic decision-making by humans. This highlights the significance and role of human capital as a protective mechanism and guarantor of economic security, as well as ethical governance as a key element of economic security⁷. Economic security is inseparably linked to the protection of customer data, and sustainability requires “hybrid security” - a combination of digital monitoring training and human ethics in the management of confidential information.⁸Therefore, the main challenge facing the industry is achieving a balance between technology and personal interaction. While artificial intelligence (AI) can facilitate and improve many aspects of tourism operations, it cannot replace the skills, emotional intelligence, and creativity of people. For this balance to be successful, it is necessary not only to invest in technology but also to develop employees through training and adaptation to change, as investments in training human capital to work with artificial intelligence (AI) reduce the risk of technological unemployment and social instability, which lies at the core of sustainable development.

Risk in the tourism sector has several dimensions: economic (cyclical demand, dependence on international markets, and fluctuations in consumer income); operational (managerial decisions, logistical problems, and the quality of services provided); technological (intelligent systems)⁹; and social. Effective management of these risks requires the development of early warning systems, internal control mechanisms, and investment in human capital capable of interpreting data, making decisions, and coordinating timely actions during crises.

Particular attention in contemporary research is devoted to security and trust as factors of economic stability. In the context of the digital transformation of tourism, economic security is increasingly associated with the management of cyber risks. Tourism enterprises, particularly hotels and tour operators, process large volumes of personal, financial, and behavioral data, making them vulnerable to cyberattacks and misuse. In practice, the tourism sector is among the most affected service industries in terms of cyber incidents, and these risks have a direct impact on the economic security and sustainability of tourism businesses. The consequences include not only direct financial losses but also the loss of loyal customers, as such incidents negatively affect corporate image and reputation¹⁰.

³ UNWTO& World EconomicForum (2022). GlobalRisksandTourismResilience[онлайн]. [прегледан на 13 май 2026]. Достъпен на: <https://www.unwto.org/publications?search=Resilience>

⁴ Schwab, K. (2016). TheFourthIndustrialRevolution. Geneva: World EconomicForum

⁵ Иванов, С. (2021). Икономика на автоматизацията в туризма: от работи към изкуствен интелект. Годишник на Икономически университет. Варна, том 63, №1, с. 112

⁶ World TourismOrganization (2023). International TourismHighlights: 2023 Edition, UNWTOBrief, pp. 12-15

⁷ Димитров, П. (2022). Управление на човешкия капитал в ерата на алгоритмите. Списание „Икономика и управление на туризма“, кн. 3, с. 18-25

⁸ Николова, М. (2023). Управление на риска и киберсигурност в международния туризъм. София: Академично издателство „Проф. Марин Дринов“, с. 115-120.

⁹ Becker, G. (1993). Human Capital: A TheoreticalandEmpiricalAnalysis. Chicago: UniversityofChicagoPress.

¹⁰ OECD (2022). ArtificialIntelligence, InnovationandProductivity. Paris: OECDPublishing. [онлайн]. [прегледан на 3 май 2026]. Достъпен на:



In this context, artificial intelligence (AI) is emerging as a tool for enhancing economic security through more effective risk management, the analysis of large data sets, information processing, forecasting tourism flows, early identification of anomalies, and automated security monitoring. Consequently, the implementation of automated risk management systems can reduce operational losses by between 15 and 25 percent, provided that these systems are integrated into a clear management framework and utilized by well-trained human capital¹¹.

Nevertheless, academic analyses emphasize that technology alone cannot guarantee economic security, since the lack of qualified human capital, insufficient interpretation of data, and excessive dependence on automated solutions may increase the risk of strategic errors. As a result, the concept of a hybrid security model has become increasingly prominent in the literature. Within this model, artificial intelligence (AI) supports managerial decision-making but does not replace expert judgment and responsibility.

From a macroeconomic perspective, economic security in tourism is closely linked to the protection of employment and social stability. Data from the International Labour Organization indicate that tourism is among the leading employers in many European regions, meaning that crises affecting the sector can have significant socio-economic consequences¹².

Algorithmization of Management as a Foundation for the Sustainable Management of Tourist Destinations is one of the main approaches that enables the full implementation of the sustainable development of tourist destinations is the process of algorithmization of sustainable management. Algorithmization represents a description of the sequence of individual operations related to management, the possibilities for selecting alternatives within the individual stages of this sequence, and the orientation of the process toward specific strategic objectives established by the strategic management of the destination. Algorithmization contributes to each element of sustainable development and, more specifically, to: the economic efficiency of tourism enterprises, environmental sustainability, the achievement of a high degree of social sustainability, the management of tourist destinations within the context of a sustainable model for their future development, technical algorithms in destination management, planning algorithms, monitoring and evaluation algorithms, marketing algorithms, tourist flow management algorithms, algorithms for interaction with stakeholders involved in a particular project, and crisis-management algorithms¹³. Therefore, risk management in tourism should be regarded not only as a corporate responsibility but also as a social and economic responsibility.

In conclusion, it can be summarized that economic security and risk in the tourism sector are interrelated and require an integrated approach that combines strategic management, technological innovation, and human capital development. Only through such a balanced model can tourism enterprises and destinations build resilience, mitigate the negative impacts of risks, and ensure long-term economic development while adhering to environmental standards. Sustainable tourism also presupposes interaction among various structures and forms of ownership and governance. From the formation of the tourism product through its promotion and implementation, a wide variety of stakeholders participate in these activities. This approach is fully consistent with the climate change management model, whereby particular attention within tourism activities and the concept of sustainable tourism is devoted to local communities and local self-government authorities. An important task in implementing this approach is the development of long-term programs for such interaction, taking into account the need for a certain degree of “flexibility” in the provision of tourism products. It is precisely this type of interaction that makes it possible, on the one hand, to implement the concept of sustainable tourism and, on the other, to follow the principles of climate change management. Significant importance is also attached to the use of “flexible forms such as public-private partnerships and the participation of tourism enterprises in the programs of local communities and non-profit organizations.”¹⁴

https://efaidnbmnnnibpcajpcglclefindmkaj/https://www.oecd.org/content/dam/oecd/en/publications/reports/2021/01/oecd-science-technology-and-innovation-outlook-2021_3f424d14/75f79015-en.pdf

¹¹ European Commission (2021). 2030 Digital Compass: The European Way for the Digital Decade [онлайн]. [прегледан на 6 май 2026]. Достъпен на: <https://transition-pathways.europa.eu/policy/european-commissions-communication-2030-digital-compass>

¹² ILO (2021). Skills and Human Capital Development in Tourism [онлайн]. [прегледан на 1 май 2026]. Достъпен на: https://www.ilo.org/global/publications/books/WCMS_799185/lang--en/index.htm

¹³ Rizova, T. (2025) Management of tourist destinations in the context of the sustainable model of their future, International Scientific Conference "The Economy of the 21st Century: Economic Innovation and Sustainable Growth". Sofia. NBU, p. 229

¹⁴ Rizova, T. (2024) Climate Change Management for Sustainable Tourism, . Proceedings, International Scientific Conference: Economics, Management, Security. Sofia. NBU, pp. 234-239



The role of Artificial Intelligence (AI) in risk and security management is reflected in the creation of opportunities to improve risk management through the analysis of large volumes of data, trend forecasting, and automated monitoring systems. These include applications for forecasting tourist flows, which assist tourism enterprises and destinations in planning capacity and resources; crisis communication tools that provide timely and personalized information to visitors; and consumer behavior analysis tools that identify early signs of changes in preferences or market disruptions¹⁵. However, Artificial Intelligence (AI) itself does not reduce risk; on the contrary, it creates new risks associated with cybersecurity, the reliability of algorithms, and ethical issues surrounding data processing. For this reason, integration must ensure both system security and the ethical use of data, while practical models for managing economic security in tourism should be implemented, encompassing: first, vulnerability assessment (identifying key threats and evaluating their potential impact); second, preventive actions (developing adaptive strategies that reduce the likelihood of risks occurring, including through the training and development of human capital); third, an institutional framework (establishing policies that support the economic stability of the tourism sector, including financial reserves, guarantee mechanisms, and insurance schemes); and fourth, technological solutions (the use of Artificial Intelligence (AI) for timely warning, analysis, and automated responses).¹⁶

In conclusion, economic security and risk in the tourism sector are not opposing categories but rather interdependent aspects of management.

GOOD EUROPEAN PRACTICES FOR THE INTEGRATION OF ARTIFICIAL INTELLIGENCE AND HUMAN CAPITAL IN TOURISM

In Europe, the integration of artificial intelligence (AI) into the economy, and particularly into the tourism sector, is implemented within the framework of clearly defined strategic and regulatory policies, with the European Strategy for Artificial Intelligence and the AI Act serving as fundamental documents that emphasize security, ethics, transparency, and risk management. Overall, the European Union adopts a so-called human-centric approach to artificial intelligence (AI), whereby technological innovations are intended to support rather than replace human capital, while placing a strong emphasis on security, ethics, transparency, and risk management. In the field of tourism, these policies are reflected through initiatives aimed at the digital transformation of destinations and tourism businesses, while simultaneously encouraging the development of workforce skills. This may be regarded as a good practice at the macro level, since the integration of artificial intelligence (AI) is linked to the strategic development of human capital and the economic security of the sector.

The study of the experience of leading European tourist destinations makes it possible to identify effective models of synergy between artificial intelligence (AI) and human capital. The analysed European good practices are presented by region and are united by their focus on sustainability¹⁷:

- **Northern Europe:** Ljubljana, Slovenia (integrated digital systems for ticketing, transport, and mobility through the “URBANA Card”); Copenhagen, Denmark (artificial intelligence for managing tourist flows and sustainable mobility); Stockholm, Sweden (smart applications for tourist information and security, as well as data management for better planning and resource efficiency); Helsinki, Finland (the “MyHelsinki.fi” platform, integrating open data and algorithms for real-time personalised recommendations to tourists based on their preferences and information regarding the current capacity utilisation of attractions through “Visitor Management”).
- **Western Europe:** Amsterdam, the Netherlands (the “Public Eye” system – a 24-hour monitoring platform for crowd management, ensuring tourist safety and optimising logistics in the urban environment); Paris, France (the integrated

¹⁵ Пак там, OECD (2022). Artificial Intelligence, Innovation and Productivity. Paris: OECD Publishing. [онлайн]. [прегледан на 27 май 2026]. Достъпен на:

https://efaidnbmnnnibpcajpcglclefindmkaj/https://www.oecd.org/content/dam/oecd/en/publications/reports/2021/01/oecd-science-technology-and-innovation-outlook-2021_3f424d14/75f79015-en.pdf

¹⁶ ILO (2021). Skills and human capital development in tourism [онлайн]. [прегледан на 8 май 2026]. Достъпен на:

https://www.ilo.org/global/publications/books/WCMS_799185/lang--en/index.htm

¹⁷ European Commission (2025). Smart Tourism Destinations: Best Practices from the March, 2025, EU Digital Strategy [онлайн]. [прегледан на 15 май 2026]. Достъпен на:

https://smart-tourism-capital.ec.europa.eu/factsheets/european-capital-smart-tourism_en



“Smart Paris” platform – predictive analysis of energy efficiency in hospitality and intelligent mobility solutions aimed at reducing the carbon footprint).

- **Central Europe:** Munich, Germany (the “Roads” system and the “München Smart City” platform – real-time management of tourist flows, visitor analytics, and congestion forecasting); Vienna, Austria (the “WienBot” digital assistant and the “IVIE – Your Personal Guide” platform – urban resource management, alongside the “Vienna Tourist Board” programme for systematic staff training in the use of artificial intelligence (AI) tools within information centres); Prague, Czech Republic (the “Golemio” digital platform – optimisation of economic security and reduction of overcrowding in the historic city centre; the “Prague Visitor Pass” project – real-time visitor data analysis aimed at reducing overtourism in the historic centre and supporting the economic sustainability of peripheral districts); Turin, Italy – serving as a “bridge” between Central and Southern Europe and recognised as the **European Capital of Smart Tourism 2025**, within the context of the European Capital of Smart Tourism initiative and broader economic linkages (the “Torino Smart City” platform – augmented reality solutions; the “Visit Torino” application – personalised tours; the “CTE Torino” innovation centre – active training of human capital in digital skills and cybersecurity).
- **Southern Europe:** Lisbon, Portugal (the “Lisboa Smart Management Control Center” – LSMCC platform for monitoring security and tourist flows; the “Gira.Lisboa” project for demand forecasting and shared mobility; the national training platform “Digital Academy of Turismo de Portugal” providing digital literacy training for employees); Benidorm, Spain (the specialised “Benidorm Beach Safety & Intelligence” platform – beach safety monitoring, ensuring a high level of economic security for the tourism product); Málaga, Spain (the “Social Listening Tools” digital application – analysis of artificial intelligence (AI)-generated data from social media to adjust customer service strategies; the “Check-in Málaga” system – management of the legal registration of tourists, ensuring economic security and transparency within the short-term rental sector; the “Malaga Pass” and “Malaga Smart City App” platforms – management of tourist access, transport, and museum admissions, collecting real-time data to optimise visitor routes); Barcelona, Spain (the “Digital Future Society” strategy – management of “smart” beaches through occupancy and safety sensors, ensuring security and resource sustainability); Venice, Italy (the “Smart Control Room” monitoring centre – observation of tourist flows and forecasting of flood risks in order to protect cultural heritage and economic security).
- **Eastern Europe:** Tallinn, Estonia (the “E-Estonia” concept and the “Bürokratt” chatbot – a virtual assistant for tourists and investors, integrating secure digital identities and blockchain technology for data cybersecurity); Kraków, Poland (the “MSI – Miejski System Informacji” platform and the “Kraków Smart City” project – management of tourist flows and visitor safety in the Old Town, while developing analytical skills among human capital through cooperation with local technology parks); Budapest, Hungary (the “Budapest Card” application – analysis of consumer behaviour for the purpose of personalising the tourism product and ensuring the efficient allocation of marketing resources); Bucharest, Romania (the pilot digital platforms “Visit Bucharest” and “Bucharest City App” – real-time management of tourism services and training of human capital to work with big data and artificial intelligence (AI) tools for forecasting market demand); Varna, Bulgaria (the “Visit Varna” platform and a digital tourist information centre for analysing seasonal flows and improving the economic sustainability of seaside tourism); Sofia, Bulgaria (the “Sofia City Card” project and “Visit Sofia” – digital solutions for the connectivity of transport and cultural attractions); Katerini, Greece (the “Katerini Smart City” platform – urban environment management, and the “Municipality of Katerini” initiative for the systematic training of municipal employees and tourism-sector workers for the effective use of technology).

The selected examples of good practices from different regions of Europe outline a common trend: the sustainable model of the “smart” destination is based on a balance between three pillars: data, technology, and human capital¹⁸.

The analysis, based on a review of numerous scientific publications and European strategic documents, demonstrates that good practices for the integration of artificial intelligence (AI) and human capital can be reduced to four main directions: first, **human capital management** – practices for analysing skill requirements, planning training programmes, and optimising work processes without eliminating the human factor (OECD, 2021); second, **security and risk management** – the use of artificial intelligence (AI) for monitoring operational and cyber risks, early warning systems, and the prevention of economic losses (UNWTO, 2022);

¹⁸<https://smarttourismdestinations.eu/digital-library/>. [прегледан на 20 май 2026].



third, **sustainability** – resource optimisation, management of tourist flows, and reduction of environmental and social pressures (European Commission, 2020); and fourth, **integrative practices** – combining technological solutions with policies for human capital development and an organisational culture of security.

Based on the analysis of European strategic documents, scientific publications, and sectoral reports, good practices for the integration of artificial intelligence (AI) and human capital in tourism can be grouped into four main categories: first, **good practices oriented towards human capital management** (analysis of skill requirements, planning of training and reskilling initiatives, and optimisation of work processes without eliminating the human factor); second, **good practices oriented towards security and risk management** (AI-based systems for monitoring operational and cyber risks, early warning systems for crises, and the analysis of behavioural and market data to prevent economic losses); third, **practices oriented towards sustainability** (resource optimisation, management of tourist flows, and reduction of environmental and social pressures on destinations); and fourth, **integrative practices** (combining technological solutions with active policies for human capital development and an organisational culture of security) (OECD, 2021; UNWTO, 2022).

Within the European model, managerial competencies, ethical responsibility, and the ability to make decisions under conditions of uncertainty are of critical importance.

RELATIONSHIP BETWEEN GOOD PRACTICES AND THE ECONOMIC SECURITY OF TOURISM

Good practices in European tourism can be interpreted as mechanisms for enhancing economic security through the reduction of market and operational uncertainty, increasing adaptability to crises, and strengthening trust in tourism systems. The integration of artificial intelligence (AI) and human capital creates the preconditions for sustainable tourism models capable of functioning effectively even under external and systemic risks (OECD, 2021). From a scientific perspective, the analysis of good practices indicates that the European experience is still in a phase of institutional and conceptual development. This means that: first, good practices are often fragmented; second, there is a lack of a unified methodology for evaluation; and third, there is a need for empirical research examining their impact on human capital and security.

The conducted research and analysis demonstrate that there are real and applicable good practices for the integration of artificial intelligence and human capital within European tourism. Their effectiveness, however, is directly dependent on the quality of human capital, managerial culture, and the strategic approach to security. In this sense, good practices should not be viewed in isolation, but rather as part of a comprehensive model for economic security and sustainable tourism development. On the one hand, the analysis of good practices shows that human capital is a key mediator ensuring the safe and effective functioning of artificial intelligence (AI) through managerial competencies and digital skills, ethical responsibility and decision-making under conditions of uncertainty, and the transformation of technology into a tool for sustainable development and economic security. On the other hand, the integration of artificial intelligence (AI) and human capital leads to a reduction in operational and market risks, increased resilience of tourism organisations, and the strengthening of trust and security within tourism systems.

In conclusion, the European experience demonstrates that the highest levels of competitiveness are achieved by those cities that invest simultaneously in advanced algorithms and in the digital qualifications of their workforce. The analysis of European good practices indicates that the integration of artificial intelligence (AI) is most successful in countries with high levels of digital literacy. The implementation of European best practices for personal data protection guarantees the economic security of consumers. Through the “hybrid approach,” the risks of technological isolation are minimised and greater added value is created. However, in practice, the findings of the study indicate that: first, good practices remain fragmented and limited; second, there is no unified assessment of their effectiveness; and third, there is a need for empirical research on their impact on human capital and economic security. The practical dimensions of these good approaches may also be associated with organisational-level practices that: integrate chatbots, digital assistants, or demand forecasting systems (increasing service efficiency without eliminating human contact); introduce staff training programmes for working with artificial intelligence (AI) tools (although assessments of their long-term outcomes have not yet been published); and utilise artificial intelligence (AI) for data collection and analysis in order to improve sustainability and service quality. Therefore, although Europe has established structural policies and examples of the integration of artificial intelligence (AI) into tourism, empirical studies that systematically evaluate its impact on human capital and sustainability remain insufficient.



CONCLUSION

The discussion points addressed in the present study focus primarily on the synergy between artificial intelligence (AI) and human capital as a whole, and the findings unequivocally emphasise the general conclusion that the integration of artificial intelligence (AI) into tourism should not be viewed as a process of replacing human labour, but rather as a strategic opportunity for its enhancement. The analysis demonstrates that the economic security and sustainability of the sector are directly dependent on a balanced approach—utilising artificial intelligence (AI) for analytical support and automation, while simultaneously investing in human capital for crisis management and response.

The summarised findings can be reduced to three main conclusions:

1. Artificial intelligence (AI) and human capital are not competing factors, but complementary drivers of economic security and the sustainable development of tourism.
2. A sustainable tourism model requires strategic management that places human capital at the centre of digital transformation and utilises artificial intelligence (AI) as a tool for enhancing the security, efficiency, and adaptability of the sector.
3. Artificial intelligence (AI) and human capital are strategic factors for the economic security and sustainable development of tourism.

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