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SHAROF RASHIDOV NOMIDAGI SAMARQAND DAVLAT
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**«INSON KAPITALI VA IJTIMOIIY RIVOJLANISH»
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HOW DIGITIZATION BRIDGES THE SERVICE ECONOMY WITH THE GREEN ECONOMY IN SUSTAINABLE TOURISM

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Abstract: The dual imperatives of sustainability and digitalisation are instigating a profound transformation in tourism, an essential sector of the global service economy. The swift ascent of the industry has historically eased economic advancement and cultural exchange; nonetheless, it has concurrently worsened environmental issues and resource use. The green economy, emphasising social inclusion, efficient resource utilisation, and low-carbon growth, needs a prompt reformation of tourism practices. Digital technologies, including artificial intelligence, blockchain, big data analytics, and immersive platforms, are transforming the design, delivery, and experience of tourism services. This study examines the intersection of sustainability and digitisation in tourism, aiming to decide how digital innovation may integrate ecological responsibility into service-oriented models.

Key words: Digitization; Service economy; Sustainable tourism; Tourism 4.0; Digital inclusion.

RAQAMLANTIRISH BARQAROR TURIZMDA XIZMAT KO'RSATISH IQTISODIYOTINI YASHIL IQTISODIYOT BILAN QANDAY BIRLASHTIRADI

Annotatsiya: Barqarorlik va raqamlashtirishning ikki tomonlama talablari global xizmat ko'rsatish iqtisodiyotining muhim sektori bo'lgan turizmga chuqur o'zgarishlarni keltirib chiqarmoqda. Sanoatning tez sur'atlar bilan rivojlanishi tarixan iqtisodiy taraqqiyot va madaniy almashinuvni osonlashtirdi; shunga qaramay, u bir vaqtning o'zida atrof-muhit muammolari va resurslardan foydalanishni yomonlashtirdi. Ijtimoiy integratsiya, resurslardan samarali foydalanish va kam uglerodli o'sishga urg'u beradigan yashil iqtisodiyot turizm amaliyotini tezkor isloh qilishni talab qiladi. Sun'iy intellekt, blokcheyn, katta ma'lumotlar tahlili va immersiv platformalar kabi raqamli texnologiyalar turizm xizmatlarini loyihalash, yetkazib berish va tajribasini o'zgartirmoqda. Ushbu tadqiqot turizmga barqarorlik va raqamlashtirishning kesishishini o'rganadi va raqamli innovatsiyalar ekologik mas'uliyatni xizmat ko'rsatishga yo'naltirilgan modellarga qanday integratsiya qilishi mumkinligini aniqlashga qaratilgan.

Kalit so'zlar: Raqamlashtirish; Xizmat ko'rsatish iqtisodiyoti; Barqaror turizm; Turizm 4.0; Raqamli inklyuziya.

КАК ЦИФРОВИЗАЦИЯ СВЯЗЫВАЕТ ЭКОНОМИКУ УСЛУГ И «ЗЕЛЕНУЮ» ЭКОНОМИКУ В СФЕРЕ УСТОЙЧИВОГО ТУРИЗМА

Аннотация: Двойной императив — переход к устойчивому развитию и цифровизация — инициирует глубокую трансформацию туризма, являющегося важнейшим сектором мировой экономики услуг. Стремительное развитие этой отрасли исторически способствовало экономическому прогрессу и культурному обмену, однако одновременно усугубляло экологические проблемы и вело к чрезмерному потреблению ресурсов. Принципы «зеленой» экономики, делающие упор на социальную инклюзивность, эффективное использование ресурсов и низкоуглеродный рост, требуют оперативного преобразования туристической практики. Цифровые технологии, включая искусственный интеллект, блокчейн, аналитику больших данных и иммерсивные платформы, трансформируют процессы проектирования и предоставления туристических услуг, а также меняют опыт их потребления. В данном исследовании рассматривается взаимосвязь устойчивого развития и цифровизации в туризме с целью определить, каким образом цифровые инновации могут интегрировать принципы экологической ответственности в сервисно-ориентированные модели.

Ключевые слова: цифровизация; экономика услуг; устойчивый туризм; «Туризм 4.0»; цифровая инклюзия.

Introduction

Tourism has long been acknowledged as a vital element of the global service economy due to its contribution to GDP, facilitation of cultural exchange, and generation of employment possibilities (Negassa, 2024). Nonetheless, its swift ascent has elicited apprehensions over resource utilisation, environmental degradation, and social disparity. In recent years, there has been an increasing focus on ensuring that tourism aligns with green economy principles (Tehseen, Ong, Hossain & Andrews, 2024). The green economy emphasises resource efficiency, social inclusion, and low-carbon growth, all essential for the long-term sustainability of tourism (Gao, 2023). The digital revolution, driven by digitisation, artificial intelligence, big data, blockchain, and the Internet of Things, is reshaping the tourism industry (Rane, Choudhary & Rane, 2023). At present, digital platforms ease nearly all aspects of travel, encompassing marketing, destination management, guest experiences, and reservations. Tourism serves as a laboratory to explore the potential for the service economy to transition to a more resilient and environmentally sustainable model, since the intersection of sustainability and digitisation presents both opportunities and challenges (Zeqiri, Ben Youssef & Maherzi Zahar, 2025).

Digital technologies serve not only as convenience aids but also as catalysts for the integration of sustainability into tourism practices. Intelligent tourism systems utilise big data analytics to enhance visitor distribution, mitigate road congestion, and address environmental issues (Fatorachian, Kazemi & Pawar, 2025). Artificial intelligence offers

environmentally sustainable travel alternatives to motivate passengers to pursue them. Blockchain technologies enhance supply chain transparency and ease the verification of sustainability assertions (Kashem, Shamsuddoha & Nasir, 2025).

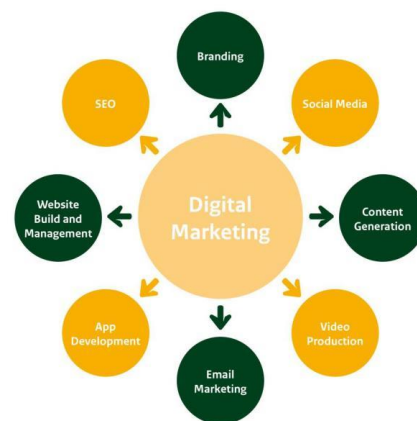


Figure 1 Digital Marketing.

Source: Acorn Tourism Consulting. Accessed link:

<https://www.cbi.eu/market-information/tourism/tips-go-digital>

Concurrently, virtual and augmented reality generate immersive experiences that diminish the necessity for actual travel, hence reducing carbon footprints (Rane, Choudhary & Rane, 2023). These advancements align with the United Nations' Sustainable Development Goals, including SDG 12 concerning responsible consumption and production, and SDG 13 about climate action (Arora & Mishra, 2023). The significance of digitalisation in furthering global environmental goals is emphasised. Tourism exemplifies the service economy, characterised by its focus on interpersonal relationships, consumer-centric experiences, and intangible products (Liu, Bilgihan & Kandampully, 2025). Digitisation is disrupting conventional patterns by automating processes, enhancing efficiency, and easing the generation of novel forms of

wealth. To guarantee sustainability in the digital service economy, business frameworks must be restructured (Neligan, Baumgartner, Geissdoerfer, & Schöggel, 2023). Hotels, airlines, and tour operators are progressively employing digital monitoring systems, carbon-neutral policies, and eco-certifications to assess energy usage and trash management. Destinations are using digital governance frameworks that integrate ecological sustainability with economic growth, ensuring tourism is both environmentally responsible and financially practical (Shestakovska, Liashenko, Dluhopolskyi, Duka, Mykhailovska & Filipova, 2025).

360° TOURISM EXPERIENCE

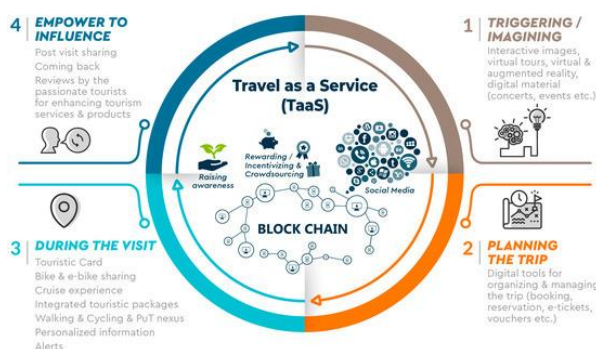


Figure 2 TAAS cycle: A 360-degree tourism experience. Source: TAAS Project Interreg Europe 2021–2027. Cited in: (Myrovali, Tzanis & Morfoulaki, 2025).

However, there are challenges in digitalisation that must be addressed. Digital monopolisation refers to the phenomenon wherein large platforms dominate marketplaces, marginalising small and medium-sized enterprises (Węgrzyn, 2025). Automated systems may be inclined toward algorithms that foster inequalities in the accessibility of tourism options. The accumulation of personal data engenders ethical and legal dilemmas, while the digital gap may create disparities in competitiveness, as not all geographical regions or

organisations have equal access to innovative technology (Zeqiri, Ben Youssef & Maherzi Zahar, 2025). To align these risks with environmental aims, robust governance, fair access, and inclusive innovation strategies that prioritise justice alongside efficiency are essential (Raihan, 2025).

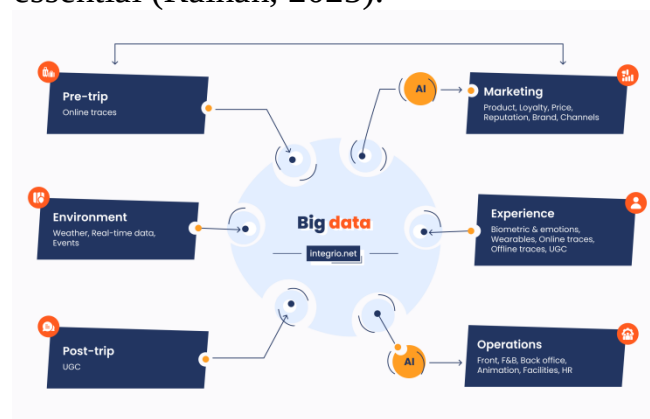


Figure 3 Automated systems tourism. Accessed online: <https://integrio.net/blog/benefits-of-ai-in-tourism>

Globally, numerous towns are implementing smart city tourism initiatives and utilising IoT devices to track energy use, traffic patterns, and air quality. In Europe, internet platforms are utilised to advocate for low-carbon transportation and eco-certified lodging (Vinodan & Meera, 2026). Governments in Asia, are acknowledging the significance of tourism for economic advancement and environmental conservation by investing in a sustainable digital tourist ecosystem. These examples illustrate the diverse methods of integrating sustainability into tourism operations through digitisation, along with the geographical disparities in capabilities and goals (Ali Mari, & Ahmad, 2026).

The intersection of sustainability and digitisation in tourism encompasses multiple elements. The prevalence of market dominance and digital reliance

underscores the necessity for fair access and the dangers of monopolisation (Abdelmalak, 2025). The emergence of artificial intelligence and workforce transformation entails both employment reductions and efficiency improvements (Garay-Tamajón & Torrent-Sellens, 2025). Progress in digital inclusion and innovation allows small enterprises to keep competitiveness. Environmental advancements, such intelligent energy management and waste monitoring, contribute to the reduction of ecological footprints (Hong, & Xiao, 2024). Ultimately, data security and governance underscore the significance of cultivating stakeholder trust and the ethical utilisation of digital technology. These features collectively exemplify the dual role of digitisation: fostering sustainability while yet upsetting market systems (Tiron-Tudor, Deliu & Ndou, 2026).

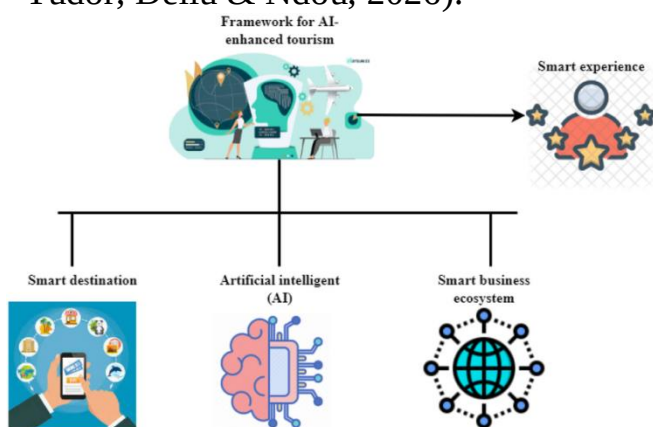


Figure 4 Framework for AI-enhanced Tourism. (Zhang, 2023).

The tourism industry is currently at a pivotal juncture. Digitalisation is revolutionising service delivery, while sustainability needs a significant transition towards environmental accountability. Connecting the service sector to the green economy needs technological innovation, governance, inclusion, and ethical accountability (Xia, Cao & Bilawal Khaskheli, 2025). The proficient use of digitisation can ease the

incorporation of sustainability into tourism, so transforming the sector into a resilient, egalitarian, and ecologically responsible economy (Candia, 2024). This investigation aims to illuminate the potential for tourism to thrive at the intersection of digital transformation and sustainable development by examining global patterns, technological applications, and governance issues.

Literature Review

The interplay between digitisation and sustainability in tourism has been a prominent subject in academic discussions, highlighting the industry's dual function as a generator of economic wealth and an environmental burden. There is a growing interest in researching the potential of digital technology to transition tourism from a conventional service economy model to a more resilient green economy framework (Bratić, Marić Stanković, Pavlović, Pivac, Kovačić, Surla & Zlatanov, 2025). This literature review combines findings from prior studies, emphasising the theoretical foundations, empirical evidence, and practical implementations of digitisation in advancing sustainable tourism (Garay-Tamajón & Torrent-Sellens, 2025). The initial research emphasised the pivotal role of information and communication technologies (ICTs) in tourism, specifically with online booking systems, digital marketing, and customer relationship management (CRM) (Kuzman, Petkovic & Milovancevic, 2024, July). Nevertheless, the scope has been broadened to include emerging technologies such as artificial intelligence, blockchain, and the Internet of Things. Currently, the instruments are seen as facilitators of sustainability, aiding in the mitigation of challenges such as overtourism, resource inefficiencies,

and carbon emissions (Fotiou, Halkiopoulos & Antonopoulou, 2024, September). Researchers conducted analysis of predominant issues concerning digitalisation and sustainability in tourism were visitor experience, destination management, commercial solutions, and smart sustainable destinations. They found that, although digital technologies are becoming increasingly prevalent in tourism operations, discrepancies persist between managerial discourses and the actual execution of smart practices (Ljubisavljević, Vujko, Arsić & Mirčetić, 2025).

Scholarly literature has acknowledged smart tourism as an essential framework. Smart tourism denotes the application of digital technologies in destination management, including real-time surveillance of tourist movements, environmental conditions, and resource utilisation (Mishra, Das & Patnaik, 2024). Academics assert that intelligent tourism can alleviate the adverse effects of mass tourism by dispersing visitor traffic, endorsing alternate locations, and fostering environmentally sustainable travel practices (Rahman, Aziz, Shah & Asrifan, 2024). Nevertheless, academics have shown that the innovation of smart tourism concepts has led to theoretical discrepancies, and numerous studies lack robust empirical confirmation. Digitisation is essential for enhancing openness and accountability within tourism supply chains (Luu, Pham, Siriwardana, Nguyen & Tran, 2025). Blockchain technology has been examined as a method for confirming sustainability assertions and ensuring the authenticity and traceability of eco-certifications (Shao, Ismail & Xu, 2025). This aligns with overarching trends in the

green economy, where transparency and accountability are essential for fostering customer trust. Research shows that travellers are progressively inclined to pay a premium for authenticated sustainable experiences, highlighting the economic advantages of integrating blockchain into tourism businesses (Navaratne, 2024).

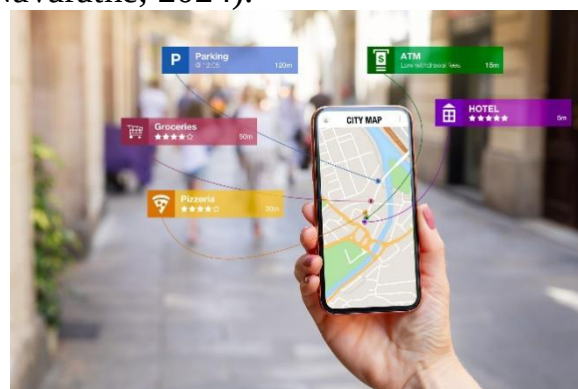


Figure 5 Smart Tourism. Accessed online:

<https://leadersinternational.org/sme4smartcities-insights/smart-cities-transforming-tourism/>

A separate domain of literature has examined the impact of artificial intelligence and big data analytics on sustainability. AI-driven systems can tailor travel suggestions to environmentally conscious preferences, guiding travellers towards more sustainable choices (Ferhataj, 2024). Destination managers can utilise big data to analyse tourist behaviour trends, pinpoint areas of environmental strain, and formulate mitigation methods (Saranya, Gupta, Smitha, Raj & Philip, 2025, November). Predictive analytics can estimate peak tourist seasons and develop ways to mitigate overcrowding. These examples exemplify the utilisation of digitalisation to apply sustainability concepts within the service economy (Vogklis, 2025). The COVID-19 pandemic has led to heightened use of digital technologies in tourism since

lockdowns and travel restrictions have compelled enterprises to innovate. Virtual travel experiences employing VR and AR have appeared as attractive alternatives to conventional travel, offering immersive cultural and natural encounters without a carbon footprint (Kaakandikar, Gadekar & Patil, 2025). Scholars contend that, over time, these digital experiences may offer alternatives to conventional tourism and sustainable solutions to alleviate stress on threatened ecosystems. A decade-long study on digitisation in tourism revealed that the pandemic has accelerated the necessity for digital transformation, making it a survival strategy for enterprises and destinations (Schweitzer & Dausendschön, 2025).



Figure 6 Artificial intelligence, Environment and Sustainability. Accessed online: <https://www.perchenergy.com/blog/innovation/artificial-intelligence-environment-sustainability>

A persistent issue is the digital divide, which hinders small and medium-sized enterprises (SMEs) and developing regions from fully using digital capabilities. Numerous SMEs lack the financial resources and knowledge to implement innovative technology, while huge platforms monopolise the digital tourism sector (Rampaul, 2025). This raises issues about inclusivity and equity,

as digitisation may intensify existing disparities in the service sector. Academics support policies that foster digital inclusiveness and enable all stakeholders to engage in the digital transformation of tourism (Zeqiri, Ben Youssef & Maherzi Zahar, 2025). A further concern pertains to data protection and ethical governance. Digital tourism relies on the aggregation and examination of personal data, prompting apprehensions about surveillance, consent, and potential exploitation. Research underscores the importance of robust regulatory frameworks in protecting consumer rights and fostering innovation (Volkodav, 2025). The importance of ethical governance is heightened in the realm of sustainability, as trust and transparency are crucial concepts in encouraging tourists to adopt eco-friendly behaviours (Yusof, Ibrahim, Amirah & Nasir, 2025).

The literature also finds difficulties associated with digitisation and workforce dynamics. Automation and artificial intelligence can supplant certain employment positions within the tourism sector, especially in customer service and administrative roles. Experts assert that digitisation generates new employment prospects in fields such as digital marketing, data analytics, and sustainability management. The challenge is in managing the labour transition to ensure that digitisation fosters fair growth instead of exacerbating unemployment (Agnolin & González-Rostani, 2025). Researchers have looked to integrate digitisation into contemporary sustainable tourism frameworks. Tourism 4.0, shaped by Industry 4.0, underscores the significance of disruptive technologies in propelling tourism towards sustainability (Tadajewski, Higgins, Denegri-Knott &

Varman, 2026). Tourism 4.0 highlights the interrelation between digital innovation, environmental stewardship, and social inclusivity. Critics contend that these frameworks are often utopian and lack empirical support for their assertions.

Regional studies can offer significant insights into the intersection of digitalisation and sustainability across several contexts. In Europe, studies have concentrated on smart city tourism frameworks that utilise IoT sensors to assess air quality, traffic, and energy usage. These designs illustrate how digitisation can ease the achievement of urban sustainability aims while enhancing the tourist experience (Vujko, Knežević & Arsić, 2025; Gawlik, Szeliga-Duchnowska & Kaźmierczak, 2026). Asian governments are setting up digital tourist ecosystems emphasising sustainability, acknowledging tourism's significance in economic advancement and environmental conservation. These regional disparities highlight the necessity of contextualising digitisation efforts with the social and environmental challenges faced by specific communities (Hairunnisa, Nurliah, Dwivayani, Kristian & Heriyanto, 2026). The literature widely acknowledges the significance of digitisation as both an opportunity and a challenge for sustainable tourism. It offers strategies for incorporating sustainability into tourism while simultaneously transforming market structures, labour relations, and governance systems. Researchers concur on the significance of multidisciplinary methodologies that integrate perspectives from economics, technology, environmental science, and social science. Future research must prioritise empirical validation of smart tourism principles, strategies for digital inclusivity, and the establishment of

ethical governance frameworks (Chen, Chen, Zhang & Law, 2026). Digitalisation can integrate the service economy with the green economy in tourism. Digital tools may actualise sustainable concepts by promoting transparency, efficiency, and innovation, while also creating new commercial prospects (Akude, Akuma, Kwaning, Asiamah & Amoah-Ahinful, 2026). Nonetheless, fulfilling this promise needs surmounting obstacles related to inclusivity, governance, and workforce transformation. The continuous evolution of tourism at the convergence of digitisation and sustainability offers many opportunities for research, policy development, and practical experimentation, setting up the industry as a pivotal participant in the worldwide shift towards a green economy (Chen, Liu, Zhang, He & Yan, 2026).

Discussion

The literature review's results show that digitisation is a transformative force that redefines the tourism sector's relationship with sustainability, surpassing operational enhancement. The distinction between the service sector and the green economy is becoming more ambiguous because of digital innovation, which is generating both new opportunities and tensions. This discourse emphasises the ability of digitisation to integrate sustainability into tourism activities, as well as to alter market structures, governance frameworks, and worker dynamics. The significance of smart tourism in the implementation of sustainability is a significant discovery. Big data and IoT-based intelligent solutions enable real-time monitoring of resource utilisation, environmental conditions, and visitor traffic at destinations. This allows managers to address overtourism, reorganise visitor

flows, and develop strategies to mitigate ecological pressure. For smart tourism to be successful, it is necessary to set up governance systems that ensure fair access to technology and prevent market monopolisation by major platforms. Digitisation may worsen inequality, which could be detrimental to small enterprises and developing regions, in the absence of inclusive policies (Fakir, Albattat & Valeri, 2025).

The dual function of Artificial Intelligence (AI) in the sustainability of tourism is clear. On the one hand, AI-driven customisation can direct visitors toward ecologically responsible options, thereby fostering the alignment of consumer behaviour with sustainability aims. Algorithmic prejudice is a common occurrence in AI, as automated systems may prioritise certain locations or services, thereby worsening inequalities. This contradiction underscores the necessity of ethical governance frameworks to regulate AI applications in tourism, thereby preventing market distortions from jeopardising sustainability. The service sector is connected to the green economy using blockchain technology. The verification and monitoring of sustainability promises are eased by blockchain technology, which enhances accountability and transparency in supply chains. This is particularly important during a time when consumers are more sceptical of greenwashing. The implementation of validated eco-certifications can be used to motivate travellers to invest in sustainable activities at a premium and enhance trust. Nevertheless, the utilisation of blockchain technology is restricted, particularly for small and medium-sized enterprises (SMEs), because of its technical complexity and substantial cost. It is

imperative to surmount these obstacles to establish blockchain as a sustainable tourism facilitator (Valeri & Albattat (Eds.). (2024).

The potential of digital tools to promote sustainability has been emphasised by the COVID-19 pandemic, resulting in an increase in the adoption of digital Technologies. Virtual tourism experiences that are based on VR and AR offer immersive cultural and environmental activities that do not produce a carbon footprint. Although these experiences are not a complete replacement for physical travel, they offer sustainable alternatives that alleviate the pressure on fragile ecosystems. Therefore, the pandemic served as a catalyst for reassessing the significance of digitisation in the development of resilience against future disasters, as well as the concept of tourism. Nevertheless, a comprehensive evaluation of consumer preferences, technology accessibility, and cultural authenticity is necessary to ensure the long-term integration of virtual tourism into traditional activities (Yashu, Zailani & Albattat, 2025).

The digital divide, which impedes the complete utilisation of digital tools by SMEs and emerging countries, is an often-discussed subject. Major platforms dominate the digital tourist industry, resulting in monopolisation and dependency. The limited resources and ability of small and medium-sized enterprises (SMEs) impede the implementation of contemporary technology, prompting concerns about equity and inclusion. To address this disparity, it is imperative to implement policies that prioritise digital inclusion, provide financial aid to small businesses, and implement capacity-building initiatives. Conversely, digitalisation may

lead to increased disparities rather than sustainable progress. Managing the workforce's intricacies is a challenging task. Automation and AI have the potential to cut employment opportunities in the tourism sector, particularly in administrative and customer service positions. However, digitisation offers new opportunities in sectors such as digital marketing, data analytics, and sustainability management. The goal is to use this workforce transformation to achieve inclusive development through digitalisation. Training and reskilling initiatives are essential for preparing individuals for new responsibilities, thereby ensuring that workforce development is by sustainability aims.

The interrelation of environmental stewardship, social inclusiveness, and digital innovation is underscored by frameworks like Tourism 4.0. These frameworks prove the potential of disruptive technologies to enhance the sustainability of tourism. Critics argue that Tourism 4.0 is an aim that lacks empirical evidence to support its assertions. This lacuna highlights the importance of added research to experimentally evaluate theoretical models, particularly in the context of diverse regional contexts. Additionally, there are regional variations. The utilisation of technology to enhance visitor experiences and achieve municipal sustainability aims is exemplified by the European smart city tourism models. In recognition of the economic advancement and environmental conservation that tourism plays, Asian governments, particularly those in Malaysia and Southeast Asia, are investing in digital tourism ecosystems that prioritise sustainability. The necessity of digitalisation initiatives that are rooted in

the socio-economic and environmental conditions of the local region is underscored by the geographical disparities. A universal approach is unlikely to be effective due to the global diversity of tourism environments.

The discourse also encompasses the topic of ethical governance in the context of digital tourism. Surveillance, consent, and data privacy are added concerns. It is imperative to confront these significant obstacles to set up consumer confidence. In the context of sustainability, ethical governance is essential for the promotion of environmentally responsible actions by ensuring accountability and transparency. To guarantee that digitisation promotes sustainability while adhering to ethical principles, policymakers must strike a balance between consumer protection and innovation. Another noteworthy aspect is consumer behaviour. Research suggests that travellers are becoming increasingly inclined to distribute added resources toward authentic sustainable experiences, which is indicative of a shift in consumer attitudes toward ecologically responsible travel. Digitisation may ease this transition by providing immersive experiences, transparent information, and personalised guidance that prove sustainability. Cultural values, economic realities, and social standards all contribute to the multidimensionality of consumer behaviour. It is essential to understand these processes to develop digital interventions that effectively advance sustainability.

By connecting the service economy with the green economy, digitisation can ease the integration of sustainability into tourism activities. To fulfil this commitment, it is imperative to address a variety of issues, such as governance, workforce transformation, consumer

behaviour, and inclusivity. The tourism sector must adopt interdisciplinary approaches that incorporate perspectives from economics, technology, environmental science, and social science. The aim of the later research should be to empirically assess smart tourism concepts, investigate digital inclusion strategies, and set up ethical governance frameworks. This approach has the potential to transform the tourism sector into a sustainable, fair, and environmentally beneficial sector that contributes to the global transition to a green economy.

Conclusion

The global service sector has experienced a significant upheaval, as proved by the analysis of digitisation and sustainability in tourism. Tourism has traditionally been recognised for its economic benefits and cultural interchange. Currently, the tourism industry faces a critical juncture, needing the reconciliation of digital innovation with the tenets of the green economy. Convergence is not simply a trend; it is an essential requirement for enterprises and locales to confront the issues of resource depletion, climate change, and shifting customer expectations. Digitalisation has substantially advanced sustainability by enabling the optimisation of resource utilisation, improving transparency, and altering consumer behaviour. Artificial intelligence, blockchain, smart tourism platforms, and immersive technologies such as virtual reality and augmented reality exemplify the ability of digital innovation to incorporate sustainability into tourism operations. These technologies have eased the monitoring of environmental conditions, the redistribution of visitor flows, and the verification of eco-certifications, thereby

making sustainability concepts more accessible than before. Literature recognises digitisation to enhance inclusion, foster resilience, and diminish ecological footprints, especially during crises like the COVID-19 pandemic. However, digital change presents contemporary issues that require effective management. The necessity for strong governance frameworks is highlighted by the challenges of digital monopolisation, algorithmic prejudice, data privacy concerns, and workforce displacement. Digitisation has the potential to intensify inequality, marginalise small enterprises, and undermine consumer trust without inclusive policies and ethical regulations. The digital gap is a critical issue, especially in underdeveloped nations where access to emerging technology is limited. Interdisciplinary methodologies that amalgamate insights from economics, technology, environmental science, and social studies are essential to address these issues.

The importance of structuring digitalisation efforts within cultural and regional frameworks. Asian digital ecosystems, European smart city tourism concepts, and worldwide virtual tourism efforts exemplify varied methodologies for incorporating sustainability into the tourism sector. These discrepancies prove that there is no universal model; instead, methods must be tailored to the cultural norms, governmental structures, and economical situations of the locality. This contextual sensitivity is crucial for ensuring that digitisation fosters sustainability across various tourism contexts. The tourism sector must embrace digitalisation as a method for achieving sustainability, rather than as a goal, while contemplating the future. This needs a holistic strategy that adeptly

harmonises environmental stewardship, inclusion, ethical governance, and technology innovation. To ensure that digitisation promotes the transition to a green economy, it is essential for governments, corporations, and researchers to collaborate in developing frameworks. Consumer education can foster ecologically sustainable travel patterns, while training and reskilling initiatives are crucial for equipping the workforce for the shift to new careers. Digitisation enables the tourism industry to enhance its environmental

responsibility, equity, and resilience. Tourism may forge a link between the service and green economies, so advancing global sustainability goals and creating economic and cultural value. The aim is to align innovation with sustainability mandates through the responsible use of digital tools. Digitalisation will not only revolutionise tourism but also position it as a frontrunner in the overarching shift towards a sustainable future, contingent upon competent management.

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