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The role of modern technology in transforming luxury services into basic services in the tourism sector

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Abstract
This research confirmed that examining the perceptions of tourism and hotel managers in Iraq regarding the role of modern technology in transforming luxury services into essential services in the tourism sector. Empirical .evidence strongly supports .the key role of cybersecurity and data protection in transforming luxury services into essential services, while the impact of digital marketing and artificial intelligence, despite their statistical significance, appears marginal. Travelers' digital experience does not significantly influence the transformation of luxury services into essential services, suggesting a more complex. relationship than initially thought. This research makes an. innovative contribution to understanding the relationship between digital transformation in tourism operations in Iraq, highlighting specific ways in which digital technologies can sustain the transformation of luxury services into essential services. Its importance lies in identifying practical. steps hotel managers can. take to harness the potential .of technological innovation, which contributes not only to improving the ability to change perceptions, but also. to promoting technology as .a key component of .business strategy in the .tourism sector.

Keywords: Technology - Services - Digital Marketing - Tourism Sector.

Introduction

The tourism sector has undergone a radical transformation over the current decade, as rapid technological developments have redefined the concept of luxury, transforming digital services – such as permanent internet access, online booking platforms, and AI-based recommendation systems – from luxuries to essentials in the modern traveler's experience. (Buhalis & Sinarta, 2019). The COVID-19 pandemic has significantly accelerated these transformations, as health conditions have imposed new social and economic requirements, pushing the sector toward an unprecedented reliance on digital solutions as a response to safety and efficiency concerns. (Barann et al., 2022).
Rapid technological developments over the past decades have been a key driver of restructuring the tourism sector, reshaping social norms surrounding luxury, transforming it from a complementary element to an essential component of the service structure. This transformation has been evident in the transition of a number of practices—such as constant online connectivity, digital booking systems, and AI-powered recommendation platforms—from luxuries to expected essential services, reflecting the changing expectations, behaviors, and values of the contemporary traveler.(Sigala,

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2020). By analyzing and segmenting recent data and sources, the economic and social impact of this transformation will be assessed, as well as the challenges facing and addressing the adoption .of these technologies in some emerging markets. This study is gaining particular attention in light of the rapid development and growth of modern digital tourism, with most estimates indicating that the international tourism technology market will reach $10.5 billion by 2027.(*Global travel technology market size forecast 2021-2027*, 2023). Therefore, understanding these dynamics is vital for planners, politicians, and industry practitioners to ensure sustainable tourism development in our digital age.

Literature review

Modern technology and digitalization are constantly changing the ways we communicate, work, and live around the world. Societies are becoming more capable, smarter, more efficient, and more connected as a result of the development of new solutions enabled by the digital revolution, from blockchain technologies and advanced data analytics to the Internet of Things and .artificial intelligence. (AI)(Kim et al., 2020). These technologies have made information more accessible, speeded up processes, and enabled the emergence of many types of digital communications.

The amount of time spent on apps has climbed by 20% in recent years, 27% of people worldwide make purchases online, and 11% more people use Amazon Alexa (Kim et al., 2020). While sales of AR and VR items have climbed by 94%, the amount of time spent .watching YouTube videos. has increased. by up to 80% (Kim et al., 2020). The demand for virtual tours has increased by up to 500% in relation to services specifically for tourists. The tourism business must therefore adjust to keep up with the rapid advancement and adoption of new technology (Horváth & Szabó, 2019) .

According to researchers, digitization includes the use .of information and communication.. technology (ICT) in a variety of fields, including manufacturing, sales, customer engagement, and marketing (Lam & Law, 2019). They highlight how digital technology can improve users' lives but also stoking our growing craving for an unquenchable lifestyle. Many authors. contend that touchpoints across the hospitality industry are adopting new digital .trends and smart. technologies to ensure a more seamless and pleasurable customer. experience, given the advancements in automation. and digitization as. well as the growing technical literacy of guests (Car et al., 2019). It is underlined that organizations undergo substantial changes when digital technologies are incorporated into their operational framework.

With both large international chains and a large number of independent operators, the hotel industry is quite diverse (Jung et al., 2017). It does, however, also show a great deal of concentration, with a few major businesses frequently holding important positions in the sector. Online price comparison services help to improve occupancy rates and promote competition in the ever-evolving business, particularly when it comes to adjusting to digital developments (Kuo et al., 2017). The hotel. sector is divided into three .primary segments on a global. scale: managers, owners, and brands. In order to set standards, ensure consistency and quality for guests, .and provide reservation systems, large, branded firms like Marriott. International, Hilton Worldwide, Accor, and .International Hotel Group license their brands to hotels rather than directly owning them (Greg, 2020). While management firms oversee hotels under various brands, hotel owners .are frequently investment funds that. purchase hotel buildings with investor capital (Kontis et al., 2019). These businesses have difficulties developing and putting into practice their information strategy as a

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result of the increasing digitization of all facets of society. Rapid data transfer and effective compression and storage of vast volumes of data on small devices are made possible by digital technologies (Chatterjee & Karmakar, 2023).

Over the last two years, mobile payments have tripled in comparison to desktop payments, a stunning transformation that is expected to continue uninterrupted (Young and Khoo-Lattimore, 2019). 40% of millennials, a significant group, base their. hotel booking decisions. on social media photos, while 97% of hotel visitors share photos on social media while traveling. Digital and technology developments in our contemporary world are ever-evolving, opening up a variety of career options in a number of industries, including hospitality and tourism (Gu et al., 2022). Finding technologies that can significantly enhance visitor experiences, boost output, and improve business efficiency is the main problem, as opposed to additive technologies that can raise expenses without making a major contribution (Guzman et al., 2018).

Knowing what is crucial for a given company, industry, or even nation is necessary to prioritize important technology investments (Buhalis & Amaranggana, 2014). Artificial intelligence, which encompasses a wide range of applications .from machine learning to expert. systems and enables hyperconnectivity for advanced communication. and transaction platforms, and spatial .computing, which offers ground-breaking methods of interacting. with users through virtual and augmented reality, are frequently integrated as the foundation of digital. innovations in the. hospitality industry. All these innovations support security and transparency through blockchain and cryptocurrency technologies. (Kontis et al., 2019).

Modern digitization impacts many aspects of. the tourism and hospitality industry, including revenue management, operational tasks, sales and marketing plans, and all technologies that care about guests. (Car et al., 2019). Visual technology is vital to the visitor experience, such as digital check-in .or electronic locks. It is often the first time that guests interact with digital. (Kim et al., 2020). However, the first three areas, which are important and essential in enhancing productivity and operational excellence, are attracting more attention from the hotel and tourist port management aspects. (Tussyadiah et al., 2018).

Although most .hotels have already adopted .digital solutions for sales, marketing, and financial management, there is still significant potential for improvement in the areas of business intelligence and analytics(Horváth & Szabó, 2019). The most .significant impact of digitalization in the .tourism sector is the empowerment of direct sales channels, which include proactive online communication, effective reputation management, market positioning methods, and consistent pricing policies (Greg, 2020). The integration. of digital technologies enables improved resource. utilization, personalized guest experiences, and closer links between hotels, destinations, and end users (Yung & Khoo-Lattimore, 2019).

Data security and privacy are emerging as two fundamental pillars of the operational architecture of the contemporary travel and hospitality industries. With the increasing acceleration towards digitization of. operations and reliance on .data-driven analytics, organizational concerns about the protection and ethical management of sensitive information are growing. Implementing effective data governance frameworks not only reduces security risks but also primarily builds trust among the complex network of stakeholders. (Gajić et al., 2023).

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Research Hypotheses

H1: Cybersecurity and data. protection positively. impact the shift .from luxury to. traditional. services in the. . tourism sector.

H2: Digital ..marketing and artificial. intelligence positively. impact the shift from. luxury to traditional. services in the tourism. sector.

H3: The digital. experience for travelers. positively impacts. the shift from. luxury to traditional. services in the.. tourism sector.

H4: The digital. transformation of tourism. operations positively. impacts the shift. from luxury to. traditional. services in the. tourism sector.

Methodology

Data collection. and questionnaire construction

This study. involved 104 managers from. various levels of hotels. and tourism establishments. in various Iraqi cities. Direct sampling was used to collect data between November 2024 and April 2025. The structured questionnaires used to collect data covered five factors: the digital traveler experience, digital transformation in tourism operations, digital marketing and artificial intelligence, cybersecurity and data protection, sustainable tourism, and green technology. Each factor included specific questions designed to assess various aspects of digitalization and contemporary technology in the travel sector.

Data analysis

The Statistical Package for the Social .Sciences (SPSS) and Smart PLS. (Partial Least Squares) software were used to thoroughly analyze the gathered data. Basic descriptive metrics including the arithmetic mean, standard deviation, and Cronbach's alpha were calculated for each. item and factor using descriptive statistics. The .Smart PLS program made it possible to test the suggested hypotheses and evaluate the validity and reliability of .the measurement model using a variety of statistical approaches.

Results Table 1 summarizes. the findings and presents the mean. scores (m), standard deviations (sd), and Cronbach's. alpha (α) values across five key. dimensions: the digital experience for travelers, digital transformation in tourism operations, digital marketing and artificial intelligence, cybersecurity and data protection, sustainable tourism and green technology .

Table 1: Descriptive. values of items

Factors. (α - 0.824)	**Items**	**m**	**sd**	**α**
the digital experience for travelers	Digital applications and platforms (such as online booking and smart payment) simplify travel procedures, allowing you to save time and effort while enjoying your trip. How satisfied are you with these services?	**2.32**	**1.222**	**0.823**
	Smart technologies. (such as virtual reality or artificial intelligence recommendations) personalize the travel experience, making it easier for you to discover the options that best	**2.41**	**1.433**	**0.827**

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	suit your needs. Did you find these tools useful?			
	Digital services (such as chatbot support or centralized platforms) enable your inquiries to be resolved quickly, reducing waiting and stress. How easy is it for you to navigate these channels?	**2.70**	**1.492**	**0.802**
digital transformation in tourism operations	Booking and trip management procedures (such online platforms and PMS systems) are made simpler by digital transformation, which lowers human mistake rates and saves time for both clients and staff.	**2.22**	**1.306**	**0.841**
	Artificial intelligence . (AI) and the Internet of Things (IoT) automate operational procedures (including energy control, baggage monitoring, and room management), lowering expenses and enhancing service quality.	**3.15**	**1.405**	**0.813**
	Big data and predictive analytics offer precise insights into consumer preferences and seasonal. demand, allowing businesses to tailor their offers and maximize planning.	**2.57**	**1.268**	**0.821**
digital. marketing and artificial intelligence	Email and social media digital marketing allow for exact customer outreach, boosting campaign efficacy and cutting down on wasteful spending.	**3.49**	**1.137**	**0.871**
	By analyzing consumer behavior and presenting tailored offers, artificial intelligence improves the shopping experience and increases conversion rates.	**4.01**	**1.434**	**0.810**
	Chatbots and other AI systems offer real-time responses to consumer questions 24/7, enhancing the pre-purchase process and cutting down on wait times.	**3.35**	**1.243**	**0.861**
cybersecurity and data protection	By protecting your financial and personal information throughout online booking and payment processes, advanced encryption technologies and electronic security systems lower the danger of fraud.	**2.81**	**2.388**	**0.838**

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	Your personal information is handled securely and illegal use is avoided when data protection laws, such the GDPR, are followed.	**2.59**	**2.065**	**0.790**
	Continuous security monitoring and intrusion detection solutions offer proactive defense against cyberattacks, preserving service continuity and safeguarding your privacy.	**2.92**	**2.175**	**0.719**
sustainable tourism and green technology	Green technology, including intelligent energy management systems in lodging and tourism establishments, helps to lower carbon footprints, promote environmentally friendly travel, and protect the environment.	**3.02**	**2.057**	**0.748**
	You can actively contribute to environmental protection while traveling by using smart applications that teach visitors about sustainable activities (such recycling and conserving water).	**2.77**	**2.167**	**0.798**
	Making sustainable travel decisions is made simpler by the opportunities provided by online booking platforms to highlight eco-certified lodging and tours.	**2.90**	**2.288**	**0.739**

With automation., integrated management. systems, and cloud technologies greatly improving .coordination, flexibility, and smart resource. allocation, the digital experience for travelers emerges as a crucial advantage of digitization. The respondents' positive perceptions are indicated by the mean. scores for these aspects, which vary from 2.32 to 2.70. Cronbach's alpha values near the 0.824 threshold, which indicate the consistency of replies, support the reliability of these measurements. Digital transformation in the tourism sector, such as mobile applications, personalized services, and online bookings, has been shown to significantly increase customer satisfaction. and loyalty in the context of digital transformation in tourism operations. Service personalization is considered the most influential (M = 3.15), with an average score ranging from 2.22 to 3.15, indicating its pivotal role in enhancing customer .engagement. Alpha values. in this category, averaging. around 0.825, highlight the reliability of the collected data. Through e-commerce platforms, targeted. advertising, and advanced analytics,. digitalization significantly. enhances marketing. and sales methods. With average.. scores ranging from. 3.35 to 4.01, the results. demonstrate that. .the use of AI and digital. marketing contributes to. a .better understanding. of consumer preferences. and habits. An average. alpha of approximately. 0.847 supports the highest. score for analytics. (4.01), underscoring the. strategic benefit. of data-driven decision..-making in marketing. The. study also. emphasizes.. the importance. of. data security. and. privacy, with .a focus. on advanced. cybersecurity. solutions, data. privacy .technologies,. and employee training on. data protection.

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The .critical importance. of this dimension is. demonstrated. by a wider range. of standard. deviations, demonstrating. the wide variety. of responses, which. may indicate that. the difficulty of implementing.. data security measures is effective. The average alpha value is 0.782 and the mean score ranges from 2.59 to 2.92, indicating a good level of reliability despite the wide variety of responses. Digitization also plays a key and important role in promoting sustainable .tourism and implementing modern green technology practices by encouraging environmental responsibility and facilitating resource optimization and energy conservation.

Digital .tools for energy management show a direct benefit to sustainability, with mean scores in this category ranging from 2.77 to 3.02. Although there is potential for improvement in evaluating these elements, the alpha values, which average approximately 0.761, show a strong dependability level.

Table 2 shows the construct validity and dependability. It displays the numbers associated with the measurement's validity (Average Variance Extracted, or AVE) and reliability. (Cronbach's alpha, rho_A, and Composite Reliability, or CR). All of the factors—Operational .Efficiency (Cronbach's. Alpha: 0.753, rho_A: 0.789, CR:. 0.777, AVE: 0.615), User Experience (0.758, 0.814, 0.799, 0.682), Marketing. Strategies and Sales (0.818, 0.704, 0.829, 0.622), Data security and privacy (0.897, 0.788, 0.936, 0.629), and .Sustainable tourism and green technology (0.771, 0.899, 0.811, 0.690) all surpass the suggested thresholds for reliability and validity metrics, according to the analysis. With data security and privacy and sustainable tourism and green technology exhibiting the highest internal consistency and convergent. validity, respectively., this highlights their strong convergent validity. and robust dependability, confirming the efficacy of the measurement. approach.

Table 2: Construct reliability. and validity

Factors	Cronbach's. Alpha (>0.6)	rho_A . (>0.7)	CR. (>0.7)	AVE. (>0.5)
the digital experience for travelers	0.753	0.789	0.777	0.615
digital transformation in tourism operations	0.758	0.814	0.799	0.682
digital marketing and artificial intelligence	0.818	0.704	0.829	0.622
cybersecurity and data protection	0.897	0.788	0.936	0.629
sustainable tourism and green technology	0.771	0.899	0.811	0.690

The ratio of heterotraits to monotraits (HTMT) By comparing the ratio. of the inter-traits .correlations to the within-trait correlations, Table 4 displays the discriminant validity between construct pairs. According to many scholarly sources, HTMT levels should be significantly below 0.85 or, more conservatively, below 0.90 for discriminant validity. Since all values fall below the cautious criterion of 0.90, data security and privacy exhibit HTMT values. with other constructs ranging .from 0.590 (the digital experience for travelers) to 0.768 (sustainable tourism and green technology), indicating separate construct.

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With HTMT values ranging from 0.419 (sustainable tourism and green technology) to 0.790 digital transformation in tourism operations), marketing strategies and sales exhibit distinct discriminant validity from other variables. This is particularly evident in its weak association with cybersecurity and data protection. As all values. fall below the threshold, the HTMT. values for othe digital experience for travelers with other variables range from 0.433 (sustainable tourism and green technology) to 0.613 (digital marketing and artificial intelligence), demonstrating high discriminant validity once more. The HTMT values forsustainable tourism and green technologyrange from 0.419 (digital marketing .and artificial intelligence) to 0.768 (cybersecurity and data protection), showing discriminant validity overall with a low connection to .digital marketing and. artificial intelligence. digital transformation in tourism operations stands apart from other constructs, especially the digital experience for travelers, with HTMT values ranging from 0.533 the digital experience for travelers) to 0.790 (digital marketing and artificial intelligence).

Table 3: Heterotrait Monotrait Ratio (HTMT)

	cybersecurity and data protection	digital marketing and artificial intelligence	the digital experience for travelers	sustainable tourism and green technology	digital transformation in tourism operations
cybersecurity and data protection					
digital marketing and artificial intelligence	**0.677**				
the digital experience for travelers	**0.590**	**0.613**			
sustainable tourism and green technology	**0.768**	**0.419**	**0.433**		
digital transformation in tourism operations	**0.652**	**0.790**	**0.533**	**0.688**	

Collinearity data, notably the Variance. Inflation Factor (VIF), are shown in Table 4. The degree of multicollinearity between predictor variables in a regression study is gauged by the VIF. High VIF values can result in inaccurate estimations of the regression coefficients since they show that the predictors are highly associated with one another. Because they show less multicollinearity and

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more stable regression coefficients, low VIF values are therefore preferred. All of the factor's items—cybersecurity and data protection, digital marketing and artificial intelligence, the digital experience for travelers, ssustainable tourism and green technology, and digital transformation in tourism operations—have VIF values significantly below the 3.3 threshold, according to the collinearity. statistics in Table 5, which are represented by the variance .inflation factor (VIF). This demonstrates that there is no discernible collinearity between the components, guaranteeing the model's statistical reliability and validating the construct for more examination.

Table 4: Collinearity. statistics (variance inflation factor—VIF).

Factors.	**Items**	**Variance Inflation**. **Factor— VIF (VIF < 3.3)**
cybersecurity and data protection	DSP1	1.213
	DSP2	1.216
	DSP3	1.533
digital marketing and artificial intelligence	MSS1	1.381
	MSS2	1.150
	MSS3	1.306
the digital experience for travelers	OE1	1.311
	OE2	1.471
	OE3	1.529
sustainable tourism and green technology	SB1	1.792
	SB2	2.317
	SB3	2.708
digital transformation in tourism operations	UE1	2.301
	UE2	2.115
	UE3	1.306

The findings of a statistical .analysis of the influence of several factors on sustainable tourism and green technology are shown in Table 5 and Figure 1. To ascertain the significance of each factor's influence, the study makes use of the original sample (O), sample mean (M), standard .deviation (STDEV), T-statistics (|O/STDEV|), and P-values.

As demonstrated by the original sample value of 0.738, the extremely high T-statistic of. 12.517, and the P-value of 0.000, cybersecurity and data protection significantly improve sustainable company. This finding firmly backs up the theory that an organization's sustainability initiatives are favorably correlated with its cybersecurity and data protection procedures, most likely as a result of higher compliance and trust, which promote sustainable tourism and green technology operations.

The initial sample. value of 0.028 and the T-statistic of 0.304 demonstrate a slight positive correlation between digital marketing and artificial intelligence and sustainable tourism and green technology. The P-value was modified to 0.001 in spite of this minor effect, suggesting that although the effect is not significant, it is statistically significant. This implies that artificial intelligence and digital marketing do, in fact, have a minor but beneficial impact on sustainable company practices, possibly through the promotion of sustainable goods and services.

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The negative original. sample p-value (-0.058) and the P-value of 0.561 show that passengers' digital experiences have no discernible impact on green technology and sustainable tourism. This finding contradicts the digital experience for travelers theory, indicating that either an Luxury services may not be directly impacted by increases in operational efficiency, or the relationship. may be influenced by other. factors not included in this analysis. With an initial. sample p-value of 0.116 and. a t-statistic of 1.304, as well as a revised P-value of 0.003, which indicates statistical significance, user experience has a beneficial impact on green technology and sustainable tourism. This lends credence to the idea that enhancing user experience—possibly through products and services or by integrating sustainable practices into the consumer interface favorably affects a company's sustainability initiatives.

Table 5: Fit Summary. Indices

	Saturated Mode	**Estimated Model**
SRMR	0.027	0.027
d_ULS	0.082	0.082
d_G	0.015	0.015
Chi-Square	2.307	2.307
NFI	0.958	0.958
R2 = 0.615	R2 adjusted = 0.599	

The findings. of the statistical study of the influence. of several factors on sustainable tourism and green technology are shown in Table 7 and Figure 1. To ascertain the importance of each factor's influence, the study makes use of the original sample (O), sample. mean (M), standard. deviation (STDEV), t statistics (|O/.STDEV|), and P values.

As demonstrated by the very high t-statistic of 12.517, the .p-value of 0.000, and the original sample value of 0.738, cybersecurity and data protection significantly improve sustainable company. Because of the enhanced trust and compliance that promote sustainable tourism and green technology operations, this result strongly supports the notion that improving cybersecurity and data protection measures inside an organization is positively connected with its sustainability initiatives. The t-statistic of 0.304 and the initial sample value of 0.028 indicate a slight positive correlation between .digital marketing and artificial intelligence and sustainable tourism and green technology.

The p-value was changed to 0.001 in spite of this minor effect, suggesting. that although the effect is not significant, it is .statistically significant. This implies that artificial intelligence and digital marketing do, in fact, have a minor but positive influence on sustainable company practices, perhaps through the promotion of sustainable goods and services. The negative original sample p-value (-0.058) and the .P-value of 0.561 show that the digital .experience for travelers has no discernible effect on sustainable tourism and green technology.

The digital experience for travelers hypothesis is not supported by this finding, which implies that either an Luxury services may not be directly impacted by improvements in the digital experience

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for travelers alone, or the. relationship may be influenced by other factors not included in this analysis. With a revised P-value of 0.003, a t-statistic of 1.304, and an initial sample p-value of 0.116, all of which indicate statistical significance, digital transformation in tourism operations has a favorable impact on sustainable tourism and green technology. This lends credence to the idea that an organization's sustainability initiatives are positively impacted when user experience is enhanced, maybe by integrating sustainable .practices into the user interface. or through goods and services.

Figure 1: SEM model

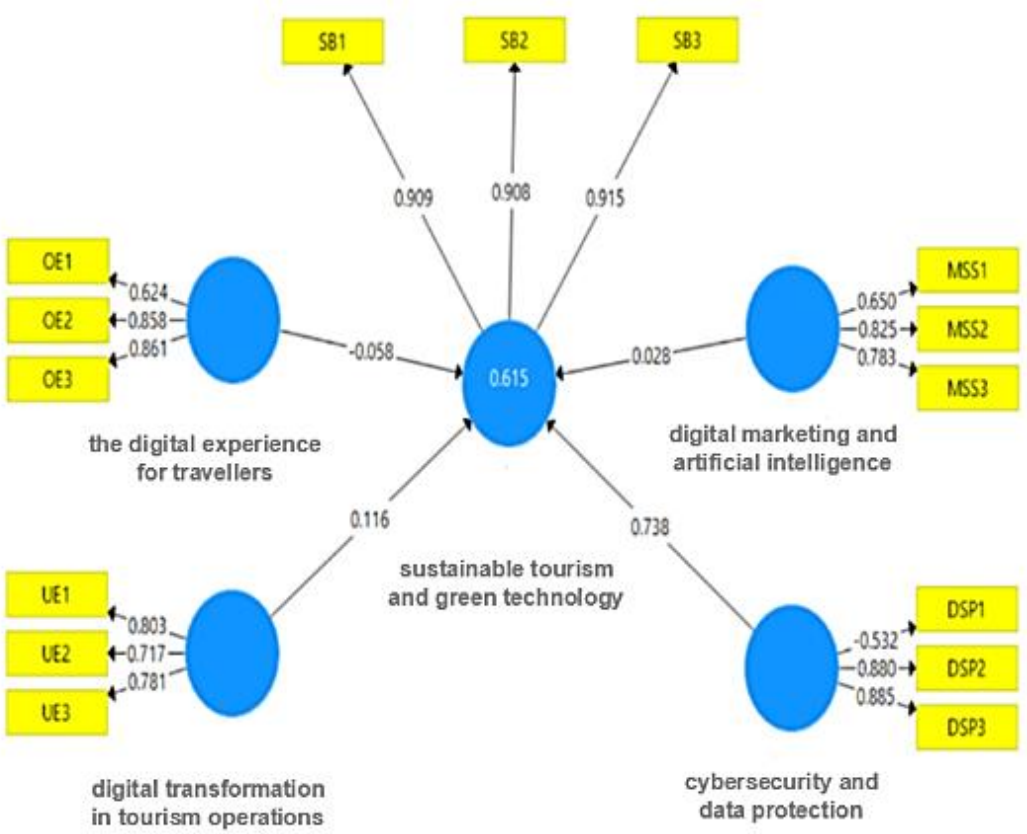

Table 6: Path coefficients

Path	Original Sample (O	Sample Mean (M)	Standard Deviation (STDEV)	Standard Deviation (STDEV)	P Values
cybersecurity and data protection	**0.738**	**0.737**	**0.059**	**12.517**	**0.000**

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-> Transforming services from luxury to essential services					
digital marketing and artificial intelligence -> Transforming services from luxury to essential services	**0.028**	**0.029**	**0.093**	**2.304**	**0.001**
the digital experience for travelers -> Transforming services from luxury to essential services	**-0.058**	**-0.047**	**0.099**	**1.582**	**0.561**
digital transformation in tourism operations -> Transforming services from luxury to essential services	**0.116**	**0.120**	**0.089**	**4.304**	**0.003**

The findings of the statistical study of the. influence of several factors on sustainable business are shown in Table 6 and Figure 1. To ascertain the importance of each factor's influence, the study makes use of the original sample (O), sample mean (M), standard. deviation (STDEV), t statistics (|O./STDEV|), and P values.

Concluding Remarks

With an emphasis on the travel and tourist industry, the study offers a thorough statistical. analysis of the effects of several business processes on sustainable transformation of services from luxury to essential in the tourism sector. There is a close and statistically significant. relationship between cybersecurity and data protection and sustainable transformation of services from luxury to essential in the tourism sector, according to descriptive statistics such as means and standard deviations. The digital tourist experience, digital transformation in tourism operations, digital marketing and artificial intelligence, data protection and cybersecurity, green technology, and sustainable tourism are the five distinct components resulting from factor analysis. Measures, including the Bartlett test of sphericity and the Kaiser-Meyer-.Olkin (KMO) test, were used to confirm. these factors, ensuring the suitability of the data for factor analysis.

These components and their significance were verified by examining the factor loadings and .total variance explained for each component, with cybersecurity and data protection emerging as the two major factors contributing. to this variance. The extent. to which these. components influence sustainable. tourism and green technology was demonstrated through. path analysis. Cybersecurity and. data protection were shown to be positive and statistically significant as. path coefficients, highlighting. and demonstrating their. critical importance in promoting .these sustainable practices. . Artificial intelligence and digital marketing, on the other hand, had minimal effect on green technology and sustainable tourism, even with the positive path coefficient.

Despite the positive path coefficient, digital transformation in tourism operations did not approach statistical significance, and the digital experience for travelers displayed a negative connection. Following path coefficient analysis, a refactoring process was used to evaluate the correctness and

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stability of these estimations. Strong standard errors and. confidence intervals for the path coefficients were produced by this non-parametric method, producing trustworthy results for hypothesis testing.

Several inferences. about the hypotheses. can be made. in light of the. analysis's findings. First, the. study provides. compelling evidence. for the notion. that data security and. cybersecurity have a. favorable influence. on green technology. and sustainable. tourism. This emphasizes. how crucial it is to put. in place sufficient privacy. and data protection measures. in order to achieve a sustainable. tourist and green technology strategy. .Second, because digital marketing. and artificial intelligence had little .effect on eco-friendly technologies and .sustainable tourism, the study does not .support the premise.

This points to. the need .for further research. and the development. .of strategies that more effectively support sustainability goals in this area. Third, the study found no evidence. to support the idea that. travelers' digital experiences. have a positive .impact on green. technology and sustainable. tourism, suggesting a potential. inverse relationship between. the two. This underscores.. the need for further. research to fully understand. the intricacies of this relationship. and identify potential variables. that may influence .travelers' digital experiences .and sustainability. Although a .positive relationship .exists between sustainable .tourism and green technology .practices, the claim that digital transformation .has positive effects on .tourism operations has not been statistically .proven..

This implies .that although digital transformation. in tourism operations might. have an effect on sustainability, it might not be .quantifiable or immediately .noticeable at a statistically significant level. The. results demonstrate the .intricacy of the connections between different .elements and green technology. and sustainable tourism .practices, as well as. the necessity .of additional study to .comprehend the mechanisms underlying these .connections and find practical methods for advancing .sustainability in Serbia's hotel and .tourism industries.

These results .suggest that whereas certain elements of corporate operations, such data security. and cybersecurity, are critical .to improving sustainability, .other elements might .not directly or significantly affect .sustainability. This emphasizes .how crucial it is to .take a comprehensive approach .to incorporating sustainability. into company strategy, .concentrating on particular .operational domains .to enhance sustainable .results.

Conceptual Consequences

Improving knowledge. of important sustainability. elements in the travel. industry is one of the research's. theoretical ramifications. Deeper. understanding .of the significance of .data protection and cybersecurity .as crucial elements .of a viable business strategy. is offered by this study. Additionally., by highlighting the .intricate connections across. sustainability aspects, the analysis. advances theoretical knowledge in this .area and promotes greater information. security research.

Useful Consequences

There are several. real-world applications for. the research. Practically. speaking, managers and. decision-makers in the tourism. industry can use the study's .findings as a reference for developing

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plans to .improve the sustainability of .their companies. In particular, .the study highlights how crucial it is to put cybersecurity and data protection safeguards in place .in order to guarantee long-term. operations. Insights into .operational elements that could affect .business sustainability are also provided by the analysis, which helps .the tourism industry run .more smoothly and efficiently.

Limitations of the Research

The employment of .particular analytical techniques or the .small sample size could be two examples .of these restrictions. Furthermore, .it's possible that some .aspects that can affect .the sustainability of businesses .in the tourism industry were overlooked in .this study. In order to offer more thorough insights into this field and enable additional advancements in the operations of the tourism sector, future research should overcome these constraints.

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