The Fourteenth International Conference on Construction in the 21st Century (CITC-14)
Rio de Janeiro, Brazil | **September 2-5, 2024**

THE IMPACT OF DIGITALIZATION IMPLEMENTATION ON CUSTOMER SATISFACTION: EVIDENCE FROM THE SOUTH AFRICAN HOSPITALITY INDUSTRY

Tankiso Phutsisi[1*], Babatunde Fatai Ogunbayo[1], and Clinton Aigbavboa[1],

[1]cidb Centre of Excellence & Sustainable Human Settlement and Construction Research Centre, Department of Construction Management &Quantity Surveying, Faculty of Engineering and the Built Environment, University of Johannesburg, South Africa
corresponding-author- phutsisi.tp@gmail.com

Abstract:

The impact of digitalisation implementation on customer satisfaction within the hospitality industry is essential for increasing customer satisfaction in developing countries, particularly South Africa. However, the impact of digital integration in the hospitality industry must be understood to enrich its application and significantly transform service delivery in the South African hospitality industry. This study assesses the impact of digitalisation implementation on customer satisfaction in the South African hospitality industry. Structured questionnaires were distributed through random sampling techniques to 300 participants involved in the hospitality industry within Gauteng province in South Africa to collect data on employee education and training factors in customer satisfaction in the South African hospitality industry, out of which 260 were retrieved. Data collected through the questionnaire were computed using a descriptive statistical approach. Using a statistical data equation, a valid mean item score was determined in the study. The study findings indicated the impact of digitalisation in transforming hospitality industry service delivery, such as enhancing privacy, security, reservation via website, contactless payment, determining complaints of guests, controlled room temperature, controlled lights, and digital check-in. These factors impacted customer satisfaction in the South African hospitality industry by integrating digitalisation to improve decision-making, service delivery, and marketing strategies. The study recommends that the hospitality industry, while embracing digitisation, emphasise the least-ranked factors: food and beverage automation, electronic room keys, automated packing solutions, and automatic answering machines, which are examples of technologies that can improve the efficiency of hospitality operations.

Keywords: Digitalization; hospitality industry; hospitality professionals, Bed breakfast (B&B) South Africa and Gauteng province

1. Introduction

Digital inventions and technology novelties drive development and have a wide-ranging impact, particularly in the hospitality, manufacturing, and other service industries (Spath et al.,2022). Digitalisation refers to integrating digital technologies into all business operations and strategies (Ogunbayo & Ogunbayo, 2022; Abina et al., 2023). Digitalisation has revolutionised how services are delivered in the hospitality industry, creating a paradigm shift in customer satisfaction (Ristova & Dimitrov, 2019; Bamgbose et al., 2024a). As customer expectations evolve with technological advancements, the hospitality industry must adapt to maintain competitiveness and enhance guest experiences (Adewale et al., 2024). Digitalisation, defined as integrating digital technologies into everyday business processes, is unprecedentedly transforming the hospitality industry (Ristova & Dimitrov, 2019; Ogunbayo,2021). The advent of mobile technology, data analytics, artificial intelligence (AI), the Internet of Things (IoT), and cloud computing has redefined how hospitality services are delivered, enhancing operational efficiency and significantly improving customer satisfaction (Abina et al., 2024).

Digitalisation is revolutionising the hospitality industry, offering enhanced guest experiences, improved operational efficiency, and significant competitive advantages (Morrone et al., 2021; Bamgbose et al., 2024b). By leveraging emerging technology implementation, the hospitality industry can meet the evolving expectations of modern travellers, optimise resources, and drive sustainable growth (Morrone et al., 2021; Ogundipe et al.,2024a). The hospitality industry is undergoing a profound transformation driven by the rapid advancement and implementation of digital technologies (Wynn & Lam, 2023). This digital revolution is reshaping how services are delivered, creating new opportunities for enhancing customer satisfaction (Wynn & Lam, 2023).

South Africa's hospitality industry is a critical component of the economy, attracting millions of international and domestic tourists annually (Abeba, 2024). As competition intensifies and customer expectations evolve, digitalisation has become crucial for maintaining a competitive edge and achieving high levels of customer satisfaction (Abeba, 2024). Digitalisation encompasses various technologies, including mobile applications, data analytics, artificial intelligence (AI), the Internet of Things (IoT), and cloud computing (Härting et al., 2019; Ogundipe et al., 2024b). These technologies are integrated into various aspects of hospitality operations, from booking and check-in processes to personalised guest services and real-time feedback mechanisms (Härting et al., 2019). The primary goal of digitalisation in the hospitality industry is to create seamless, convenient, and personalised experiences for guests, thereby enhancing their overall satisfaction. (Härting et al., 2019; Dzingirai et al 2024).

Like many others in developing countries, the South African hospitality industry is embracing digitalisation to meet the changing demands of modern travellers (Davids & Jokonya, 2019). However, the extent to which these digital initiatives impact customer satisfaction in South Africa remains underexplored. This study aims to fill this gap by investigating the impact of digitalisation implementation on customer satisfaction within the South African hospitality sector. The study seeks to understand how digitalisation influences customer experiences and satisfaction levels. It will provide valuable insights for hospitality providers, helping them to strategically leverage digital technologies to enhance service quality and guest satisfaction. This study will contribute to the existing body of knowledge on digitalisation in hospitality, offering a South African perspective that can inform both local and international practices.

2. Literature review

The success of the hospitality industry depends on the collaboration of a broad spectrum of services and products. The benefits of the digital revolution in the sector are evident. (Zsarnocky, 2018). Digitalisation has been widely explored, and it appears to be affecting everything from employees to professional life within different industries. Digitalisation has been defined as incorporating digital technologies into everyday life by digitising anything that can be digitised (Poutanen, 2016). Furthermore, in recent years, the hospitality industry has shown a high capacity to adapt to the requirements and modifications of the digital era (Hotel Plan, 2018). Digital technology has led to significant developments in the hospitality industry, allowing for a greater understanding of the travel decision-making process and tourist behaviour during and after vacation. Poutanen et al. (2016) alluded that digital innovation is critical to the hospitality industry's customer satisfaction in tourist destinations and the tourist market.

Digitalisation and the emergence of new digital or online business models have significantly impacted hospitality. This means that with digital tools, the hospitality industry will be able to focus more on customer satisfaction and the guest experience (Zsarnocky, 2018). Moreover, Keerthan (2018) stated that digitisation transforms analogue data into digital. The digital endowment benefits customer influx and increases working efficiency by boosting business operations with the help of digitised data and information (Keerthan et al., 2018). Policies such as digital attempts to increase the use of electronic methods in the economy to improve efficiency and maximise productivity. Keerthan (2018) alluded that since 2014, the hospitality industry's focus has been on digitisation, and it is one of the industries that has been at the forefront of digitalisation and is still being intensely transformed (Keerthan et al., 2018). This changing transformation regarding digitalisation represents the dynamics of different stakeholders involved in the hospitality and tourism industry. Additionally, the hospitality industry incorporated digitalisation and created measures to increase customer satisfaction and develop new hospitality avenues (Keerthan et al., 2018).

According to Alexis (2017), the influence of digitalisation and automation in the hospitality and tourism business should be welcomed rather than resisted, and stakeholders must accept and allow its use within the industry as it assists in customer satisfaction. Dhingra (2017) acknowledged the influence of digitalisation and listed the benefits that digitalisation has offered to the hospitality industry, which include more accessible payment services, more informed travel choices and developing new age travel trends. Dhingra (2017) stated that digitalisation has revolutionised the way one travels. Greenwood and Quinn (2017) alluded that the influence of digital evolution and its impact on the future of the hospitality and tourism industry has influenced customer decision-making and the way marketing messages are conveyed. Greg, 2020 alluded that with the advancement in Artificial intelligence (AI), service robots have become more commonplace in hospitality. Service robots are “system-based autonomous and adaptable interfaces that interact, communicate, and deliver service to the customer (Wirtz et al., 2018, p. 109). Jena et al., 2020 suggested that customers believed VR simulations would be the best tool for hospitality operators to create a compelling customer experience. Through the digitally accommodated environment, customers can have a much clearer sense of what they are expecting, thus attracting more prospective customers.

The study of Alexis (2017) suggests that the impact of digitalisation implementation factors in meeting customer satisfaction in the hospitality industry include privacy, security, reservation via B&B webwide and contactless payment. Greenwood and Quinn (2017) state that these factors will include the cost of implementing, determining complaints of guests, more personalised stay and controlled room temperature. Dhingra (2017) alluded that these factors include controlled lights, digital check-in, and utilising business intelligence. Moreover, Greenwood and Quinn

(2017) alluded to the impact of digitalisation implementation factors in meeting customer satisfaction in the hospitality industry, including employees having up-to-date digital skills, visual tours of rooms, Control amenities, keeping an eye on cyber threats, ordering service via mobile app and human light sensor. Alexis (2017) noted that the criteria would include an automatic heating system, human touch, digital menus, self-check, and electronic deactivation of room keys. Dhingra (2017) stated that digitalisation implementation factors in meeting customer satisfaction in the hospitality industry include food and drinks automation, room key activated electronically, automated packing solutions and automatic answering machines. Moreover, Alexis (2017) alluded that factors include chart display, check-in and out using fingerprint, automatic foreign currency exchange and face recognition check-in and checkout. Greenwood and Quinn (2017) indicated that room occupancy sensors, interactive walls, and robots for cleaning rooms are other digitalisation implementation factors that meet customer satisfaction in the hospitality industry. This study assesses the impact of digitalisation implementation on customer satisfaction based on evidence from the South African hospitality industry.

3. Methodology

This study was carried out within Gauteng province among South African hospital industry stakeholders. The respondents were stakeholders in the hospitality industry, including customers, managers, owners, receptionists, housekeepers, caterers, security, and gardeners, specifically from hospitality industries within Gauteng, South Africa. Respondents for this study were selected based on their involvement and experience within hospitality industry activities. The province was chosen for this study because of the high volume of hospitality establishments and centres, including beds and breakfasts. Through the system random sampling method, 300 questionnaires were administered to the respondents, and 260 were retrieved. This study used the systematic random sampling method because it is more direct and eliminates the opportunity of clustering when used than cluster sampling, which breaks the population into diverse clusters and takes a simple random sample from each cluster (Rea & Parker, 2014) and covers all the elements evenly (Ogunbayo et al., 2023). Using 5 = to a very large extent, 4 = to a large extent, 3 =to some extent, 2 =to a small extent, and 1 = Not at all, questionnaires were designed on a 5-point Likert scale and recorded an 87% response rate. SPPS software was used to analyse the data for this study. The SPSS software generated the mean item score, the standard deviation, Cronbach's alpha, and the ranks from the Excel spreadsheet obtained from the Google form with a total of 260 respondents (Pallant, 2020). Before analysing the data collected, the data collected were screened and cleaned to identify errors and, if possible, correct them (Ogunbayo et al., 2023). The respondents were asked questions about their years of experience and their designation in the hospitality industry. The questionnaire asked respondents for their views regarding the thirty-three impacts of digitalisation implementation on customer satisfaction within the hospitality industry identified from the literature. The study conducted descriptive analysis, including percentage, frequency, mean item score, and standard deviation. This was conducted to examine the outcomes of the Likert inquiries about this research questionnaire. After computation, the impact of digitalisation implementation on customer satisfaction within the hospitality industry factors identified were sorted from the highest to lowest. The computation was based on the weighted responses from the survey participants for each question. It was also aligned with the scores chosen by the respondents, which were deemed collectively as the analytically agreed indicators of comparative significance (Ogunbayo et al., 2024). This helped the study assess the impact of digitalisation implementation on customer satisfaction within the hospitality industry and the factors that influence customer satisfaction in the hospitality industry. Also, Cronbach's Coefficient Alpha determines the consistency, which then determines the reliability of the measuring instrument. The coefficient is most effective when the Likert scale is used, and in this study, the Likert scale is used to get responses from the relevant respondents. The Cronbach's coefficient ranges from 0 to 1, and a Cronbach's Alpha score closer to 1.00 is acceptable. Hence, a Cronbach's value of 0.975 obtained in this study is suitable (Seiso et al., 2023).

4. Results

Figure 1 below indicates the respondents' years of experience in the hospitality industry in relation to the customer experience of bed and breakfast. The results revealed that 30.0% (N=78) had been customers/guests of the bed and breakfast for less than 12 months; 30.4 % (N=79) had been customer/guests of the bed and breakfast for 1 - 5 years; 18.1% (N=47) had been customer/guests of the bed and breakfast for 6-10 years while 13.1% (N=34) had been customer/guests of the bed and breakfast for 11-15 years and 6.5% (N=17) had been customer/guests of the bed and breakfast for 16-20 years. Lastly, 1.9% (N=5) had been customers/guests of the bed and breakfast for over 21 years.

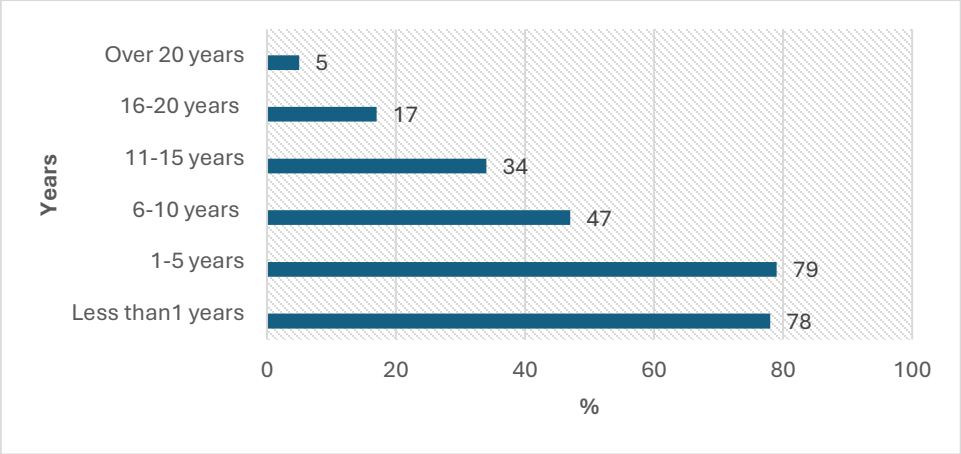

Figure: Respondents' years of experience in the hospitality industry

Figure 2 below is a breakdown of the respondents' descriptions of the hospitality industry. The result revealed that 31.90% (N=83) of the respondents were customers, 18.46% (N=48) were owners, 14.60% (38) were housekeepers, 11.15% (N=29) were receptionists, 5.38% (N=14) were caterers securities,10.00% (N=26) were security and 8.46% (N=22) were customers with the hospitality industry.

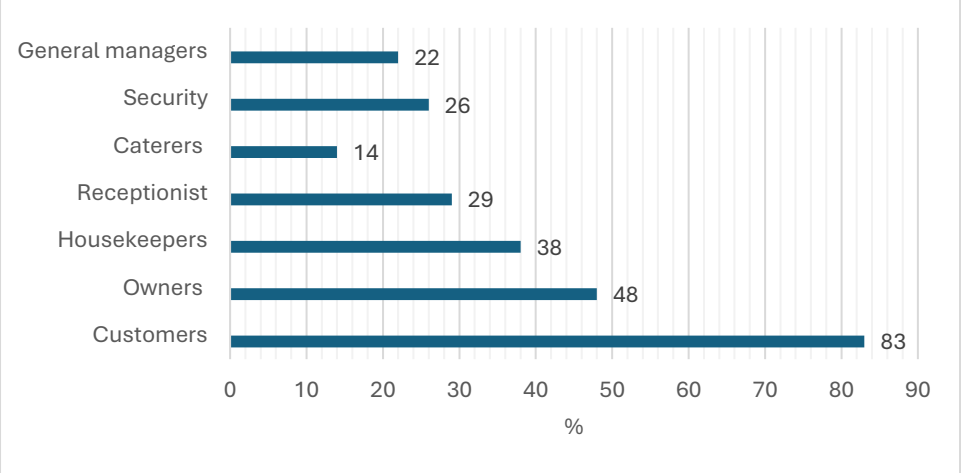

Figure 2: Respondents' Designation in the hospitality industry

Table 1 below-ranked respondents' level of agreement on the digitalisation implementation in the South African hospitality industry using a 5-point Likert scale of 5 = to a very large extent, 4 = to a large extent; 3 =to some extent, 2 =to a little extent; and 1 = Not at all. Moreover, thirty-three digitalisation implementation variables in the hospitality industry can help improve customer satisfaction in South Africa and other developing countries using the mean item scores (MIS) and standard deviation (σ). According to the respondents' assessment of digitalisation applications in the hospitality industry, factors that can assist digitalisation in increasing customer satisfaction are ranked as follows: Privacy was ranked first with a mean score of 3.73 and a standard deviation of 0.972, second-ranked was security with a mean score of 3.71 and standard deviation of 0.973, third-ranked was reservation via B&B website with a mean score of 3.52 and standard deviation of 1.049, fourth-ranked was contactless payment with a mean score of 3.46 and SD of 1.066, the ranked fifth was cost of implementing with a mean score of 3.44 and SD of 0.983, sixth-ranked was determine complaints of guest with a mean score of 3.40 and SD of 0.998. The seventh-ranked was more personalised stay, with a mean score of 3.39 and SD of 1.047, the eighth-ranked was controlled room temperature, with a mean score of 3.33 and SD of 1.053, the ninth-ranked was controlled lights, with a mean score of 3.28 and SD of 1.105, the tenth-ranked is digital check-in with a mean score of 3.27 and SD of 1.133, the eleventh ranked is utilised business intelligence a mean score of and SD 3.27 of 1.099, the twelve-ranked was employees have up-to-date digital skills with a mean score of 3.26 and SD of 1.059. Additionally, ranked thirteen is a visual tour of rooms, with a mean score

of 3.21 and SD of 1.188; the fourteenth ranked is control amenities, with a mean score of 3.20 and SD of 1.136; the fifteenth ranked is keeping an eye on cyber threats, with a mean score of 3.17 and SD of 11.215.

Moreover, the sixteenth ranked is order service via a mobile app with a mean score of 3.17 and SD of 1.198; the seventeenth ranked is a human light sensor with a mean score of 3.09 and SD of 1.192. In addition, the automatic heating system was ranked eighteenth with a mean score of 3.06 and SD of 1.184, nineteen ranked is lacks human touch with a mean score of 3.05 and SD of 1.089, twentieth ranked was digital menus with a mean score of 3.05 and SD of 1.158, twenty-first ranked is self-check in with the mean score of 3.03 and SD of 1.259, twenty-second ranked is room key deactivated electronically with a mean score of 3.02 and SD of 1.276, twenty third-ranked is food and drinks automation with a mean score of 3.00 1.136 and SD of 0.874, twenty fourth ranked was room key activated electronically with a mean score of 2.99 and SD of 1.275, twenty-fifth ranked was automated packing solutions with a mean score of 2.98 and SD of 1.162.

Also, the twenty-sixth ranked was automatic answering machine with a mean score of 2.85and SD of 1.195; the twenty seventh-ranked was chart display with a mean score of 2.81 and SD of 1.236; the twenty-eight ranked was check in and out using fingerprint in with the mean score of 2.71 and SD of 1.302, twenty -nine ranked was automatic foreign currency exchange with a mean score of 2.67 and SD of 1.315, ranked thirtieth was face recognition check-in and checkout with a mean score of 2.65, and SD of 1.311, thirty first ranked was room occupancy sensor with a mean score of 2.63 and SD of 1.277, thirty second-ranked was interactive wall with a mean score of 2.62 and SD of 1.269 and the lastly ranked thirty third was a robot for cleaning rooms with mean score of 2.46 and SD of 1.298.

Table 1: Impact of digitalisation implementation on customer satisfaction

Impact of digitalisation implementation on customer satisfaction	Mean	Std. Deviation	Mean score ranking (R)
Privacy	3.73	0.972	1
Security	3.71	0.973	2
Reservation via B&B webwide	3.52	1.049	3
Contactless payment	3.46	1.066	4
Cost of implementing	3.44	0.983	5
Determine complaints of guest	3.40	0.998	6
More personalised stay	3.39	1,047	7
Controlled room temperature	3.33	1.053	8
Controlled lights	3.28	1.105	9
Digital check-in	3.27	1.133	10
Utilise business intelligence	3.27	1.099	11
Employees have up-to-date digital skills	3.26	1.059	12
Visual tour of rooms	3.21	1.188	13
Control amenities	3.20	1.136	14
Keep an eye on cyber threats	3.17	1.215	15
Order service via mobile app	3.17	1.198	16
Human light sensor	3.09	1.192	17
Automatic heating system	3.06	1.184	18
Lacks human touch	3.05	1.089	19
Digital menus	3.05	1.158	20
Self-check-in	3.03	1.259	21
Room key deactivated electronically	3.02	1.276	22
Food and drinks automation	3.00	1.136	23
Room key activated electronically	2.99	1.275	24
Automated packing solutions	2.98	1.162	25
Automatic answering machine	2.85	1.195	26
Chart display	2.81	1.236	27
Check-in and out using a fingerprint	2.71	1.302	28
Automatic Foreign Currency Exchange	2.67	1.315	29
Face recognition check-in and check-out	2.65	1.311	30
Room Occupancy Sensor	2.63	1.277	31
Interactive Wall	2.62	1.269	32
Robot for cleaning rooms	2.46	1.298	33

4. Discussion of Findings

The study assesses digitalisation implementation factors affecting customer satisfaction in the South African hospitality industry. The result of the study indicated privacy, security, reservation via B&B website, contactless payment, cost of implementing, determining complaints of guests, more personalised stay and controlled room temperature, controlled lights, digital check-in and utilise business intelligence were the highest-ranked (1st – 11th) impact of digitalisation implementation factors on customer satisfaction within the hospitality industry. The findings align with Greenwood and Quinn (2017) that digitalisation implementation factors in meeting customer satisfaction in the hospitality industry include privacy, security, reservation via B&B website, and contactless payment was digitalisation implementation in customer satisfaction in the South African hospitality industry. The findings are similar to Alexis' (2017) study findings that cost of implementation, determining complaints of guests, more personalised stay and controlled room temperature, and controlled lights were digitalisation implementation factors in customer satisfaction in the South African hospitality industry. The finding also aligns with Dhingra (2017) that controlled lights, digital check-in and utilising business intelligence were digitalisation implementation factors in customer satisfaction in the South African hospitality industry.

The result of the study also indicates that employees have up-to-date digital skills, visual tour of rooms, control amenities, keep an eye on cyber threats, order service via mobile app, human light sensor, automatic heating system, human touch, digital menus, Self-check-in and room key deactivated electronically were the middle-ranked (12th – 22nd) digitalisation implementation factors in customer satisfaction within the hospitality industry. The findings align with Keerthan (2018) that digitalisation implementation factors in meeting customer satisfaction in the hospitality industry include employees having up-to-date digital skills, visual tour of rooms, controlling amenities, keep an eye on cyber threats were digitalisation implementation factors in customer satisfaction in the South African hospitality industry. Industry. The finding is similar to Zsarnocky's (2018) study that orders service via mobile app, human light sensor, and automatic heating system were employee digitalisation implementation factors in customer satisfaction in the South African hospitality industry. The finding also aligns with Alexis (2017), that human touch, digital menus, Self-check and room key deactivation electronically were digitalisation implementation factors in customer satisfaction in the South African hospitality industry.

The result of the study indicated that food and drinks automation, room key activated electronically, automated packing solutions and automatic answering machine, chart display, check-in and out using fingerprint, automatic foreign currency exchange and face recognition check-in and checkout, chart display, check-in and out using fingerprint, automatic foreign currency exchange and face recognition check-in and checkout were the lowest-ranked (22^{nd} – 33^{rd}) digitalisation implementation factors in customer satisfaction within the hospitality industry. The findings align with Keerthan (2018) that digitalisation implementation factors in meeting customer satisfaction in the hospitality industry, customer satisfaction food and drinks automation, room key activated electronically, automated packing solutions, and automatic answering machines were digitalisation implementation factors in the South African hospitality industry. The findings are similar to Zsarnocky (2018) study findings that chart display, check-in and out using fingerprint, automatic foreign currency exchange and face recognition check-in and check-out were digitalisation implementations in customer satisfaction in the South African hospitality industry. Alexis (2017) stated that room occupancy sensors, interactive walls, and cleaning robots were digitalisation implementation factors affecting customer satisfaction in the South African hospitality industry.

5. Conclusion and recommendations

The study examined the impact of digitisation in the hospitality industry and how it may enhance customer satisfaction. The study findings are based on the 33 identified digitalisation factors influencing customer satisfaction and hospitality industry service delivery. The descriptive statistic results identified the impact of digitalisation in enhancing privacy, security, reservation via B&B website, contactless payment, determining complaints of guests, controlled room temperature, controlled lights, and digital check-in in transforming hospitality industry decision-making, service delivery, and marketing strategies were the impact of digitalisation implementation on customer satisfaction in the South African hospitality industry.

The study establishes that the influence of digitalisation implementation on hospitality industry activities has high usage levels, resulting in improved customer satisfaction. The study's findings also reveal that digitalisation implementation in the hospitality industry is vital for positively influencing customer satisfaction and improving working efficiency by increasing business processes. The study found that technological applications such as chart display, fingerprint check-in and out, automatic foreign currency exchange, and facial recognition can benefit the hospitality industries in marketing, operations, customer satisfaction, human resources management, information technology, and security. Moreover, the study findings established that implementing digitisation in the hospitality industry will enhance guest experiences, improve operational efficiency, enable targeted marketing, and foster

customer engagement; digitalisation can benefit hospitality businesses significantly. Additionally, these improvements can lead to a competitive advantage, higher employee satisfaction, and more sustainable practices. The study suggests that understanding these implications can help industry stakeholders make informed decisions about investing in and implementing digital technologies to enhance customer satisfaction and business performance within the hospitality industry.

The study concluded that implementing digitalisation in the hospitality industry will significantly enhance customer satisfaction by delivering superior service quality, fostering engagement, and creating memorable guest experiences. It also established that the benefits of implementing digital technology in the hospitality industry extend beyond immediate operational improvements to long-term competitive advantages and sustainable business practices. As the industry evolves, embracing digital transformation remains critical to achieving excellence in customer satisfaction and overall business success. In achieving an efficient implementation of digitalisation, the study recommends that the hospitality industry should invest in emerging technologies like artificial intelligence (AI), virtual reality (VR), and the Internet of Things (IoT) to provide innovative and immersive guest experiences. It also recommends that the hospitality industry prioritise face recognition, room occupancy sensors, interactive walls, and robot cleaning to improve business processes and customer satisfaction. Also, integrating automation processes in the hospitality industry would improve security, access control, and decision-making processes. It further recommends that the industry provide ongoing digital literacy and technology training for staff to ensure proficiency in using new tools and systems to meet customer needs and satisfaction.

While the hospitality and construction industries differ in their primary focus, the insights gained from studying the impact of digitalisation on customer satisfaction in the hospitality industry are highly relevant to the construction industry. By adopting similar digital strategies, construction firms can enhance client experiences, improve operational efficiency, and achieve a competitive edge. The cross-industry application of digital technologies underscores the transformative potential of digitalisation in enhancing service delivery and customer satisfaction across different sectors.

References

Abeba, L. (2024). Role of Digital Transformation and Innovation in Enhancing the Competitiveness and Sustainability of Hospitality and Tourism Businesses in South Africa. *International Journal of Modern Hospitality and Tourism*, *4*(1), 50–62.

Abina, O. G., Ogunbayo, B. F., & Aigbavboa, C. O. (2023). Enabling technologies of health and safety practices in the fourth industrial revolution: Nigerian construction industry perspective. *Frontiers in Built Environment*, *9*, 1233028.

Abina, O. G., Ogunbayo, B. F., & Aigbavboa, C. (2024). Assessing Health and Safety Practices in the Nigerian Construction Industry in the Era of the Fourth Industrial Revolution: Issues and Challenges. In *International Conference on Engineering, Project, and Production Management* (pp. 267-278). Cham: Springer Nature Switzerland.

Abozhina, A. (2017). Analysis of international brands of apart-hotels. Economy and society, 3 (34): 1769-1775. DOI:https://doi.org/10.26140 / anie-2019-0803-0093.

Adewale, B. A., Ene, V. O., Ogunbayo, B. F., & Aigbavboa, C. O. (2024). A Systematic Review of the Applications of AI in a Sustainable Building's Lifecycle. *Buildings*, *14*(7), 2137.

Anderson, P.F. & Chambers, T.M. (1985). A reward/measurement model of organisational buying behaviour. Journal ofMarketing, 49(2), 7-23.

Avdeeva, I., Golovina, T. and Parakhina L. 2017. Development of digital technologies in economics and management: Russian and foreign experience. Management issues, 3 (58): 432-445. Available at: http://journal-management.com/issue/2017/06/06

Babkin, A., Voronov, D. and Bobariko, S. 2018. Analysis of the application of additive technologies in terms of digitalisation. Development of economy and management in the context of digitalisation. Moscow: YURAIT. 111. DOI: https://doi.org/10.18720/IEP/2018.7

Baron, E. (2016). Innovations in restaurant and hotel services. Tourism industry: opportunities, priorities, problems and prospects, 1(9): 456–463.

Bamgbose, O. A., Ogunbayo, B. F., & Aigbavboa, C. O. (2024a). Barriers to Building Information Modelling Adoption in Small and Medium Enterprises: Nigerian Construction Industry Perspectives. *Buildings*, *14*(2), 538.

Bamgbose, O. A., Ogunbayo, B. F., & Aigbavboa, C. O. (2024b). Systematic Review of the Adoption Level of Building Information Modelling in Construction Small and Medium-Sized Enterprises in Nigeria. In

International Conference on Engineering, Project, and Production Management (pp. 549-557). Cham: Springer Nature Switzerland.

Buletova, N. (2020). Balance of digitalisation and greening of the modern economy: problems in the development and security through the example of sharing economy. Micro research in economy, 1 (2): 35–42. DOI: https://doi.org/10.18334/micro.1.2.110147 Volume XI, Issue 8(48) Winter 20202018

Bykovskaya, E., Kharchilava, G. and Kafiyatullina, Yu. 2018. Modern trends in digitalisation of the innovation process. Information technologies in management, 1 (19): 38-43. DOI: https://doi.org/10.26425/2309-3633-2018-1-38-43

Concept of the draft state program "Digital Kazakhstan 2020". Available at: http://www.zerde.gov.kz.

Davids, H., & Jokonya, O. (2019). Investigating factors influencing ICT adoption among SMEs in the hospitality industry in the Western Cape. *Shifting the Digital Skills Discourse for the 4th Industrial Revolution. Boksburg: National Electronic Media Institute of South Africa (NEMISA)*, 83-96.

Dukhovnaya, L. (2019). Business process automation as a mechanism for increasing the efficiency of hotel enterprises. Service in Russia and abroad, 13 (3): 162-174. DOI: https://doi.org/10.24411/1995-042X-2019-10313

Dzingirai, M., Chirodzero, T. C., & Mutanda, V. (2024). Digital Entrepreneurship in Tourism and Hospitality Sector: Lessons from the Global South. In *COVID-19 Impact on Tourism Performance in Africa* (pp. 145-160). Singapore: Springer Nature Singapore.

Hao, J. & Liu, Y. (2017). Exploratory Study on the Development of Combination of Hotel and Apartment. Advanced materials research. Health structure material and environment. Shenzen, China. 37. Available at: http://www.iberchina.org/files/2017/economic_growth_china_anu.pdf

Härting, R. C., Reichstein, C., Haarhoff, R., Härtle, N., & Stiefl, J. (2019). Driver to gain from digitalization in tourism—Insights from South African experts. In *Third International Congress on Information and Communication Technology: ICICT 2018, London* (pp. 293-306). Springer Singapore.

Juaneda, C., Raya, J. and Sastre, F. 2016. Pricing the time and location of a stay at a hotel or apartment. Tourism economics: the business and finance of tourism and recreation, 2(9): 321-338. DOI:https://doi.org/10.18413/2408-9338-2018-4-4-0-2

Manakhova, I. (2018). Consumption in the information economy. Moscow: MAKS-Press. 286. Musavengane, R. 2019. Small hotels and responsible tourism practice: Hoteliers' perspectives. Journal of Cleaner Production, 44 (78): 786-799. Available at: https://www.sciencedirect.com/journal/journal-of-cleanerproduction/articles-in-press#aip-note

Morrone, D., Raimo, N., Tarulli, A., & Vitolla, F. (2021). Digitalisation in the hospitality industry: Motivations, effects and role of Covid-19. *International Journal of Digital Culture and Electronic Tourism*, *3*(3-4), 257-270.

Myratdurdyev, M. and Doroshenko, Yu. 2017. The practice of forming the space of apart-hotels. Actual scientific research in the modern world, 9 (32): 9-11. DOI: https://doi.org/10.26140/anie-2019-0803-0093 Official resource: https://kursiv.kz/news/obschestvo/2019-12/virtualnykh-turistov-ozhidayut-v-kazakhstane

Ogunbayo, B. F., Aigbavboa, C. O., Ramabodu, M. S., & Adekunle, S. A. (2024). Assessing Benefits of Monitoring and Evaluation Practices: The Construction Industry Perspective. In *International Conference on Engineering, Project, and Production Management* (pp. 279-289). Cham: Springer Nature Switzerland.

Ogunbayo, B. F., Aigbavboa, C., & Thwala, W. (2023). *A maintenance management framework for municipal buildings in developing economies*. Routledge.

Ogunbayo, S. B. (2021). States of education, funding, and democracy in Nigeria. Alternate Horizons.

Ogunbayo, S. B., & Ogunbayo B.F.. (2022). Understanding The Levels of Productivity of Teachers Who Are Exposed to In-Service Training. *Asian Journal of Assessment in Teaching and Learning*, *12*(2), 89-99.

Ogundipe, K. E., Ogunbayo, B. F., & Aigbavboa, C. O. (2024). A Review of Barriers to Safety Incentives Design and Implementation in the Construction Industry. In *International Conference on Engineering, Project, and Production Management* (pp. 459–470). Cham: Springer Nature Switzerland.

Ogundipe, K. E., Owolabi, J. D., Ogunbayo, B. F., & Aigbavboa, C. O. (2024). Exploring inhibiting factors to affordable housing provision in Lagos metropolitan city, Nigeria. *Frontiers in Built Environment*, *10*, 1408776.

Opawole, A., & Jagboro, G. O. (2017). Factors affecting the performance of private party in concession-based PPP projects in Nigeria. *Journal of Engineering, Design and Technology*, *15*(1), 44-57

Pallant, J. (2020). *SPSS survival manual: A step-by-step guide to data analysis using IBM SPSS*. Routledge.

Pecheritsa, E. (2016). Theoretical and practical aspects of introducing innovations in tourism and hotel business. Physical culture, 1(2): 34–41. Available at: https://fkis74.ru/index.php/fkstdr/article/view/431

Petrenko, E., Dauletova, A., Mazhitova, S. and Shabaltina, L. 2019. Analysis of measures of state support for the development of tourism in the Republic of Kazakhstan. Economic relations, 4 (9): 2677-2692. DOI:https://doi.org/10.18334/eo.9.4.41427

Pirogova, A. (2017). Trends that determine the future of marketing in the hotel business. Bulletin of the National Academy of Tourism, 2 (42): 29–33.

Polyanin, A. (2017). Trends and forecasts of economic growth for the Russian economy: a regional aspect. Central Russian Bulletin of Social Sciences, 3 (12): 53–63. DOI: https://doi.org/10.22394/2071-2367-2017-12-3-53-63

Rea, L. M., & Parker, R. A. (2014). *Designing and conducting survey research: A comprehensive guide*. John Wiley & Sons.

Revenko, N. (2017).The digital economy of the USA in the era of informational globalisation: current trends. USA - Canada: Economy - Politics – Culture, 8 (13): 84–99. DOI: https://doi.org/007.001.0321-2068.2017.000.008.5

Ristova, C., & Dimitrov, N. (2019). Digitalisation in the hospitality industry-trends that might shape the next stay of guests. *International Journal of Information, Business and Management*, *11*(3), 144-154.

Seiso, M. P., Ogunbayo, B. F., & Aigbavboa, C. O. (2023). Joint ventures in the South African construction industry: factors militating against success. *Buildings*, *13*(5), 1299.

Spath, D., Gausemeier, J., Dumitrescu, R., Winter, J., Steglich, S., & Drewel, M. (2022). Digitalisation of Society. In *Handbook of engineering systems design* (pp. 165-187). Cham: Springer International Publishing.

Semenova, L. and Klimova, T. 2018. World hotel industry: modern trends. Scientific result. Business and service technologies, 4(4): 13-24. DOI: https://doi.org/10.18413/2408-9338-2018-4-4-0-2

Shumakova, E. (2019). Apart-hotel as an innovative from organisation of a hotel business. Azimuth of Scientific Research: Economics and Administration, 3 (28): 400-402. DOI: https://doi.org/10.26140/anie2019-0803-0093

Smekhov, A. (2017). Digital Economy: Global Trends and Practice of Russian Business. National Research University: Higher School of Economics. Available at: https://imi.hse.ru/pr2017_1

Smykova, M., Rakhimbekova, Zh. and Tarakbaeva, R. 2017. Innovative marketing strategies in the hotel business. Turan University Bulletin, 4 (76): 164-168.

Solodovnik, J. (2018). Methodical foundations of the classification of innovations in the tourism sector of the Russian Federation. Bulletin of VGUIT, 4 (80): 366–370. DOI: https://doi.org/10.20914/2310-1202-2018-4-366-370 Journal of Environmental Management and Tourism 2019

Tanina, A., Kalmykova, S. and Mudrova, E. 2020. Problems and prospects of development of the apartment market in St. Petersburg. Business. Education. Law, 3 (9): 139-146. DOI:https://doi.org/10.25683/VOLBI.2020.52.302

Vartanova, M. (2017). Innovation activity in tourism and its state regulation. Economic news. 7(2): 209–222. DOI:https://doi.org/10.18334/eo.7.2.37566

Veduta, E. and Dzhakubova, T. 2017. Big Data and commercial cybernetics. Bulletin of state management. 14 (63): 43- 66.

Vintaykina, E. and Vinogradova, A. 2018. Application of innovative technologies in the activities of business hotels in order to attract the target audience. Scientific personnel, 1 (9): 213-215.

Wynn, M., & Lam, C. (2023). Digitalisation and IT strategy in the hospitality industry. *Systems*, *11*(10), 501.