ADOPTION OF CONTEMPORARY TECHNOLOGIES AMONG HOTELS IN ZIMBABWE: A CASE OF CITY HOTELS IN HARARE

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Abstract

Numerous studies have shown that leading hotels of the world take a lead in implementing the latest trends in Information Communication Technologies (ICTs) systems. However, most of the hotels in Zimbabwe are usually reactive with the pace at which they are embracing and using the ICT systems. Hence, the study explores extant literature using the scoping review approach to explain the current technological developments shaping the hotel sub-sector. This research explores the tourism and hospitality industry from a global point of view, highlighting the pros and cons brought about by the hotel industry embracing modern technologies. The following objectives specifically guided the research: to explore level of adoption of new technologies usage in Harare hotels, to establish the merits and hindrances encountered by hoteliers in the adoption of new technologies by Harare hotels. Strategies that can be adopted by hotels in Zimbabwe to enhance the contribution of new technologies have been suggested. Hotels in Zimbabwe are aware of the benefits that are obtained through the adoption of new technologies such as: value creation, improved communication, low cost of production, and improved productivity among others. The findings of the study indicate that there is underutilization of ICT by Harare hotels due many challenges that include: limited investments in ICT applications, expensive ICT infrastructure, lack of expertise and technical know-how in new technologies and software, and limited telecommunications infrastructure. The study came up with the following recommendations to the hoteliers: to be transparent when implementing new technologies, to involve employees, to socialize and capacitate all key stakeholders in order to ensure that they are ready to embrace new technologies. Also the management must give all the necessary support to the employees and equip them with the essential skills.

Keywords

Contemporary Technological Development, City Hotels, Digital Literacy, Hotel Industry, Modern Technologies

Introduction

Embrace technology or perish? This is the dilemma faced by city hotels. Today's customer demands cutting-edge technology, thus leaving hotels in a quandary of how to adapt and adopt fast-evolving technological customer preferences. What is clear is that, going digital can help hospitality operators to gain competitive advantage by appealing to today's techno-savvy customer.

The fourth Industrial Revolution, that dichotomised digitalised and non-digitalised technologies in 2016, induced disruptive changes in the hospitality business, especially the hotel sector (Popat, 2021). These disruptions solved some of the hotel's existing problems but also introduced new problems. The majority of problems solved by the adoption of the fourth industrial revolution's technological advancements involved the application of information technologies, such as robotics, big data, cloud computing, mobile ordering, point-of-sale systems, and virtual reality (Olga & Gheorghe, 2016). The adoption of modern technologies has become synonymous with service efficiency, speed, and convenience when accessing hotel services. Artificial Intelligence (AI) and chatbots have been shown to improve guest experience while mobile ordering positively impacts efficiency. Robots and robotics can lower staff workload, minimise costs, enhance customer service and experience (Wynn et al., 2022). These technological advancements have been transformed into intelligent service delivery tools, resulting in improved customer service (Goel et al., 2022).

The adoption of modern technologies by the hotel sector is important in creating new and/or improving the existing business culture, processes and customer experiences. The aim is to match the changing business to the changing market requirements. Kumar et al. (2023) noted that contemporary technologies enhance: (i) the understanding of guest behaviours and needs; (ii) adoption of strategies that facilitate transformation in business units; (iii) change management style and; (iv)equips staff with the necessary technical skills to use new technology (Kumar, Rawat, Mohd, and Husain, 2021). The extent of adoption and leveraging on technological advancements in Zimbabwe is yet to be fully explored. The slow uptake of technological advancements is attributable to the country's turbulent business environment that compromises competitiveness and attractiveness for both investment and demand (Woyo, 2018).

This study sought assess how city hotels especially those in Harare, Zimbabwe are embracing contemporary technologies. Eleven contemporary technology-based innovations were analysed. Models guiding the adoption of these technologies were also discussed. A detailed SWOT analysis of the adoption of technology by hotels in Harare was conducted with the aim of justifying why and how these hotels can adopt and embrace the use technological systems as the new norm of conducting business. The qualitative research method was used, leading to findings and discussions which concluded the chapter.

Literature Review

The literature review presents the theoretical debate on the technologies adopted in different hotel sectors in various geospatial contexts.

Contemporary/modern technologies shaping the hotel industry.
Technological advancement takes different forms within different Global North and South business operations. Like any other industry, the hotel business contextualises and adopts digitalised and non-digitalized information communication technologies to leverage its efficacies, as discussed below.

Artificial Intelligence
Artificial intelligence (AI) can be defined as a thinking power created by humans (Limna et al., 2022). AI is the computer simulation of human intelligence operations, especially computer systems (Wang et al., 2020). In affirmation, Huang and Rust (2021:31) define AI as using computational machinery to emulate human capabilities, such as doing physical or mechanical tasks, thinking, and feeling. Therefore, AI improves hospitality operations by enabling computers to make sound decisions, resulting in more efficient operations (Kumar et al., 2021). In addition, Ruel and Njoku (2021) comment that AI enables stakeholders in the tourism and hospitality industry to work smarter while developing new competencies and capabilities.

Further, using AI tools to manage the performance of human talent results in improved talent attraction, development, deployment, and productivity in human resource management (Hecklau et al., 2017; Nocker & Sena, 2019). With the assistance of AI, enterprises in the tourism and hospitality industry can leverage their on-site services and processes to improve customer experiences (Nocker & Sena, 2019). For example, hoteliers discover better approaches to treating and locking in with their clients through in-room voice-enabled virtual help devices (Bril, Kalinina, and Ilin, 2017). Amazon created an uncommon form of voice-help to assist the clients' interfaces (Ramadan, Farah, and El Essrawi, 2021). Since AI enables the delivery of personalised experiences, the concept of a smart hotel has recently been coined (Miočić et al., 2012), gaining considerable attention from both academia (Buhalis & Leung, 2018; Neuhofer et al., 2015) and business communities (Citak et al., 2021).

Furthermore, hotels may have devices that track the location of customers' smartphones to investigate customer habits so as to meet their needs at the time of arrival by generating and issuing appropriate commands to the service staff (Bril et al., 2017). Artificial intelligence is equally important in improving public catering enterprises' efficiency (Berryhill, Heang, Clogher and McBride, 2019). For example, courier logistics allows the analysis of the arrival time of the courier and instructs the kitchen to start preparing and cooking meals right before the arrival of the courier (Voronova et al., 2019). The use of artificial intelligence also allows the analysis of the

work of a restaurant and the detection of violations of rules by the staff through control of bills, the number of discount card uses, and the number of cancellations and deletions of checks (De Stefano, 2019). However, AI may cause human talent to be replaced by technology, resulting in forcing tourism and hospitality businesses to redesign their structures and processes (Saini & Bhalla, 2022).

Cloud Technologies
Cloud technologies are increasingly used in the tourism and hospitality industry to replace local servers (Voronova et al., 2019). Cloud computing based on data processing and data exchange from the cloud, which practically does not require investments in ICT infrastructure (Loukis et al., 2017), is now extensively used by the tourism and hospitality industry worldwide (Chen et al., 2012). According to Kalinina and Valebnikova, (2018), the advantages of using cloud technologies include the following: cloud server is maintained by data centre specialists; changing the computing power provided is software-based and does not require physical actions; access to the database is only limited by access rights (user name and password); data access speed is only limited by the access speed of a specific user; there is access continuity since Data centre has several duplicate communication channels and sources of emergency energy saving (Voronova et al., 2020). Clouding technology is a replacement of traditional technologies as the latter has the following limitations: local server requires regular maintenance from the system administrator; local network facilities restrict access to the database; connection speed is limited by the speed of a local provider and divided among all who are drawn to the server database (Voronova et al., 2020).

Advertising Technologies (digital assistants, nano bloggers, chatbots in social networks)
A Chatbot is a computer application program utilised to conduct an online chat discussion through content or text-to-speech (Hsu, Chen, and Yu, 2023). Tung & Law (2017) explain that Chatbot is an up-to-date software used by the hotel to simulate an intelligent conversation with webpage visitors, provide quick answers to their queries, order services and amenities rooms, and inform housekeeping about cleaning the room. In addition, this technology can be used to provide information about the food, events, amenities, and hotel services offered (Zalama et al., 2014). This technology is used for automatic answers to frequently asked customer questions, as the first technical support line, for consultations via WhatsApp on the site, and for conducting surveys and competitions (Koval & Gritsay, 2019). Chatbot technology is greatly essential to client as it helps clients in discovering data pertaining to the tourism and hospitality industry. In addition, it assists clients in making reservations. This innovation can be obtained from chat applications that includes; Slack, Hangouts, Telegram, Facebook Messenger, and Text Messages (Bisoi et al., 2020).

The utility of nano bloggers in advertisements is increasingly being valued by organisations in the tourism and hospitality industry. Nano bloggers are those bloggers whose followers do not exceed 50 000 people. Such a trend is considered to have a greater effect on a comparatively narrow target audience (Akberdina & Pushkareva, 2019).

Blockchain
Laroiya, Saxena and Komalavalli, (2020) argue that blockchain technology transfers transactions and funds through intelligent contracts without using a third party. This technology sufficiently addresses the issue of privacy that characterises the traditional tourism and hospitality industry, thus minimising exposure to sensitive data in the face of existing problems with cyber-attacks and fraud in traditional financial services (Demirkan, Demirkan and McKee, 2020).

Kumar, Lim, Sivarajah and Kaur (2023) posit that blockchain technology is a revolutionised operating system that provides customer satisfaction, extensive data integration and artificial intelligence introduction into the industry. Further, it offers high-level data protection to deliver a decentralised transaction on the Blockchain platform (Nayak and Dutta, 2017).

Augmented Reality Technologies
Virtual and artificial reality are computer-based 3D technologies used to provide an artificial environment, transport guests to the real world, for example, enable potential guests to view hotels from their homes through virtual technology (Guttentag, 2010). The most common use of virtual reality in the hospitality sector is creating virtual travel experiences using 360-degree video technology (Rahimizhian, Ozturen and Ilkan, 2020). Through this, users can experience a virtual recreation of different aspects of travel, from the flight to the arrival and to the key sights (Mohanty, Hassan and Ekis, 2020). Augmented reality can interact with guests before, during and after their stay (ÖZKUL and KUMLU, 2019). The fascination of the technology entices users to download the hotel app, allowing the accommodation facility to make a first impression and establish a direct communication channel with its potential guests (Khareva, Voronova and Khnykina, 2020). During their stay, hotel residents can use augmented reality to log in and keep users logged in, collecting information to create a more detailed guest profile (Stringam. and Gerdes, 2021).

Further, augmented reality technologies can stimulate travel purchases (the effect of being present in a hotel room and demonstrating the environment and local services using a virtual reality headset) (McLean and Barhorst, 2022). Additionally, virtual and augmented reality can be implemented by digital concierges to issue recommendations to adventurous client on recreation, for example, providing the client with the opportunity to scuba diving swimming using virtual and augmented reality technologies (Pirogova & Smorchkova, 2018). This technology helps to create a "brand impression" of a hotel visit (Lavuri and Akram 2023), combining the placement's physical parameters with its brand's intangible aspects (Flavián, Ibáñez-Sánchez and Orús, 2019), thus increasing the competitiveness of destinations (Han, Jung and Gibson, 2013).

Emergence of Open Software Products - Application Programming Interface, API
Big hospitality companies develop APIs for clients and/or internal use, leading to integration of several technological systems used in these hotels (Pirogova & Rudakova, 2018). The API permits one technology system to interact with another automatically to access its functionality (Khareva et al., 2020).

Analysis of Cash Transactions
This technology does the following tasks: analysis of the company's video archive; comparison of personnel actions with the accounting log of operations of the accounting system; analysis of compliance with standards of behaviour by personnel; and reduction of rule violation (Baddeley, 2004). This system also accepts payments from customers and produces reports, allowing cash operations staff to work with guest files (Singh and Kasavana, 2005).

Accounting personnel can make and record documents showing all charges to the client's account for the current visit by using special programs to process these documents (Dai and Vasarhelyi, 2017). In addition, this technology allows accruals for the services bought by the client to automatically reflect at the customers 'accounts at the reception and at the placement service. Lastly, the technology generates reports on the analysis of cash transactions regularly, categorising violations, detailing violations, and developing strategies to counter violations.

Analysis of Speech Scripts
This technology does the following tasks: audio recording of calls, recording of staff conversations, analysis of staff compliance to standards of behaviour and use of correct technologies, identifying the best sales, identifying best practices and reducing service time (Khareva et al., 2020). The technology achieves this by translating all dialogues into text and then analysing the text using a unique system. In spite of the fact that there is so much unstructured speech information, the technology make use of the search tools which enable the analysts to work out hypotheses on samples of a plenty phonograms within a short space of time. Using this analysis, the user can develop a change program for the existing procedures and processes. Further, this technology can be used to maximise self-service systems like personal account and website.

Speech analytics tools may result in the following benefits to the hotel business: increased revenue by increasing sales efficiency, reduced costs by increasing productivity and reducing redundant contacts, and increased customer satisfaction and improved service quality (Melamed, and Gilbert, 2011). These benefits inevitably result in improved sales efficiency, increased customer loyalty and improved customer satisfaction, a reduction in service costs without compromising quality and behavioural analytics (Khareva et al., 2020).

Biometrics and Facial Recognition
Biometrics technology is useful in identifying and confirming a client's identity. It scans the client's face when registering with the service (Kang, Brewer and Bai, 2007). Biometrics is the most reliable and accurate authentication system that can provide real-time information about employees and their use of working time (Singh, Bhardwaj, Singh and Garg, 2021). It can use fingerprint readers to track employee attendance, saving the hotel on the payroll (Gupta, Kundu. and Das, 2019). This technology lets the organisation know how employees manage their working time and adjust their pay following the information received (Nankervis, Baird, Coffey. and Shields, 2022).

Another significant advantage of biometrics is that payment can be made without wallets and bank cards, thus increasing the speed of customer service and improving security (Ogbanufe and Kim, 2018). In addition, guest accounts are updated automatically, checks are cashed, and debts are reconciled (Mills, Meyers, and Byun, 2010). The daily verification devices significantly improve customer service quality and routine procedures' speed and efficiency. Khareva et al., 2020 argue that there is no any other technology that can provide personal protection and is as effective in the identification and verification processes as biometric technologies. As a result this technology is now used in various sectors of the economy other than the tourism and hospitality industry.

Use of Voice Assistants
The voice assistant is a technology that allows a client to get all the essential hotel information such as: room service, nearby recreation facilities and how to contact the Concierge or reception (Soava, 2015). The voice assistant can be configured to control innovative equipment, such as adjusting the air conditioner, switching on and

off lighting, raising and lowering the blinds, playing music, and controlling the television (Buhalis and Moldavska, 2022). Echo smart speakers, which may be located in each room, are used. However, concerns have been raised that the use of Echo speakers in hotels may interfere with the client's privacy of personal data. Amazon claims that audio recordings of the guest's voice commands will be deleted daily, and the hotel administration cannot access both request and response records (Buhalis and Moldavska, 2022). If users connect their voice assistant to an Amazon account and use subscriptions to music services, the connection will be automatically reset when they leave the hotel (Voronova et al., 2019).

Outsourcing of Information Services
Outsourcing refers to the transfer to a third-party all or part of the functions for servicing the organisation's information needs (Karyda, Mitrou, and Quirchmayr, 2006). McIvor, 2000 also described outsourcing as the process of transferring a business' particular processes or production functions to a third party or to another business that specialises in a given field. It consists of transferring the function of professional support to the uninterrupted performance of individual systems and infrastructure based on a long-term contract (minimum one year) (Kurilova, Lysenko, Pronkin, Mukhin and Syromyatnikov, 2019). The greatest aim of outsourcing is to minimize on a business's costs while optimizing on the service rendered as much as possible. The advantages of this technology are as follows: employees are interchangeable, which ensures continuity of services provided; the qualification of employees is usually higher than the average for the market or that the average employer can afford; only the cost of services is paid as the purchase and updating of programs do not concern the customer; the cost of paying for services is offset by an increase in the expenditure base of the hospitality industry, which reduces income taxes (Evgrafov &lina, 2017).

Model Guiding Technology Adoption by Hotels
About six models are suggested in literature as used to guide how hotels can embrace new technologies. These models include Azjen & Fishbein's (1980) Theory of Reasoned Action (TRA), Azjen's (1991) Theory of Planned Behaviour, Davis' (1989) Technology Acceptance Model (TAM), as well as Venkatesh, Morris and Davis' (2003) Unified Theory of Acceptance and Use of Technology (UTAUT). Accordingly, Soares, Mendes-Filho and Gretze (2021) argue that technology adoption research in tourism is characterized by shallow theorization and an overreliance on technology acceptance model (TAM) conceptualizations. These approaches however do not consider adoption of new technology in a wider context but rather perceive it as an individual or business decision-making processes in isolation. Neither do they look at the process from a rational point of view. As such, they ignore the embeddedness of organizations in complex institutional environments and the possibility of goals beyond economic efficiency (Pourfakhimi et al., 2019: 3). Building on Parker and Cattleman (2009), Abdulhakem and Edwards (2017) argue that the problem is that they do not consider the contextual factors that affect adoption. They further posit that developing countries have complex issues such as infrastructural issues that have a greater significance to the adoption of new technologies than acceptance from an individualistic point of view (Abdulhakem and Edwards, 2017). They therefore call for the use of alternative approaches to provide deeper understandings of the 'context-dependent nature of the adoption of new technologies in the e-Tourism field' (Pourfakhimi et al., 2019:3). The process of adopting new technology must be investigated from an institutional point of view. As a result, this can give an understanding in the context of processes and perceptions that are critical in the technology-related decision-making in the Zimbabwean tourism and hospitality organizations. The institutional theory states that organizations are subject to a high level of interference from their institutional environment (Basaglia, Caporarello, Magni and Pennarola, 2009) establishing a macro view on factors that drive organizational decisions. Vargo and Lusch (2016) cited in Ramadani Kurnia and Breidbach (2017) emphasize the importance of understanding such institutional logics in service ecosystems. Polese et al. (2018), quoted in Pohjola, Lemmetyinen, and Dimitrovski, (2020) illustrate how institutions shape IT-based value co-creation in a smart tourism ecosystem. In line with institutional theory assumptions, Oliveira and Martins (2010), quoted in Soares et al., (2021) argue that institutional perspectives are particularly pertinent to understanding firm-level technology adoption. Similarly, Teo (2003) illustrates how institutional theory can inform research on the adoption of inter-organizational information systems. Sun (2018) identifies a number of institutional factors that drive the organizational adoption of big data technologies. The institutional approach is particularly pertinent to the tourism and hospitality industry, though it is now covering across many industries with sophisticated structures and heavily regulated. Gyau and Stringer (2011) in Soares et al., (2021) suggest that institutional theory is a tool that should receive attention for its potential to foster greater understanding of technology adoption in the tourism and hospitality context. Yet, despite its explanatory power and widespread use in organizational studies, institutional theory has been used in the tourism literature by only a few studies, such as research on corporate social responsibility reporting behaviour of cruise lines (de Grosbois, 2016). Most researches continue to rely on technology acceptance model assumptions or the technology, organization, environment (TOE) framework underlining the need for alternative, more macro-level perspectives (Gibbs et al., 2016; Wang et al., 2016).

This paper a result embraces the institutional theory's perspective when looking at how hotels in Zimbabwe are adopting new technology. Tourism and Hospitality is a developing industry in Zimbabwe, hence provides an interesting case when examining the pace at which hotels in this industry are embracing new technology. Zimbabwe has an internet penetration of 61.3% and a mobile penetration of 92.3% (Potraz, 2022) and is expected to grow in tandem with the government's vision of becoming an upper-middle income economy by 2030. Further, other institutions such as the trade associations and the government are recognised as being very influential in the country. Nonetheless, tourism is still emerging rather than being an established industry; the tourism sector is responsible for 5.8% contribution to Zimbabwe's GDP (ZTA, 2023). The above discourse therefore is greatly pertinent to the study as it provides a rich context regarding how institutional support and pressures are shaping the pace at which hotels are embracing new technologies in Zimbabwe.

## Strengths, Weaknesses, Opportunities and Threats (SWOT) Analysis of Adopting Modern Technologies

Table below shows the SWOT analysis of adopting the technologies as indicated in the forgoing discourse:

STRENGTH	WEAKNESSES
Labour decrease	Lack of human interaction
Waiting for line reduction	Unfamiliarity with technology, i.e. AI.
Fast access to service	Fixing error difficulty
Improved hygiene and cleanliness	Limited financial capacity
Always-on customer support	Misunderstanding between new technology and customers and employees
Improve privacy and personal security	
OPPORTUNITIES	**THREATS**
Future human helpers	High unemployment levels
Reduce language/cultural barriers	High energy resources
Improve safety and security	Increased concern about customer data security
Better world of introverts and anti-social individuals	Increased negative environmental impact primarily due to poor disposal and emission of radiation
Sustainable development	New technology, i.e. AI against humanity
Solution for mass production	

Table: SWOT Analysis of Adopting Modern Technologies. Source: Bisoi, Roy and Samal (2020)

Methodology

The chapter adopted a qualitative approach with a scoping literature review to extract critical research on Harare's hotels. The primary reason for choosing hotels in Harare is that the city holds 37% of the room inventory in Zimbabwe (ZTA, 2022). Harare had a superior room occupancy of 47% in 2022 (ZTA, 2022). Further, the city has the most diverse customer mix, with 86% foreign tourists and 14% local (ZTA, 2022). In addition, there is scant literature; hence, grey literature in the form of reports was incorporated into the stdy, as presented in Figure 1 below. The chapter used Scinapse as an academic database that indexes scholarly research output from various sources focusing on African perspectives, particularly countries like Zimbabwe. The Scinapse became relevant as Google Scholar, Scopus, Web of Science and Semantic Scholar did not generate any document for the field under study, even after using synonyms and antonyms
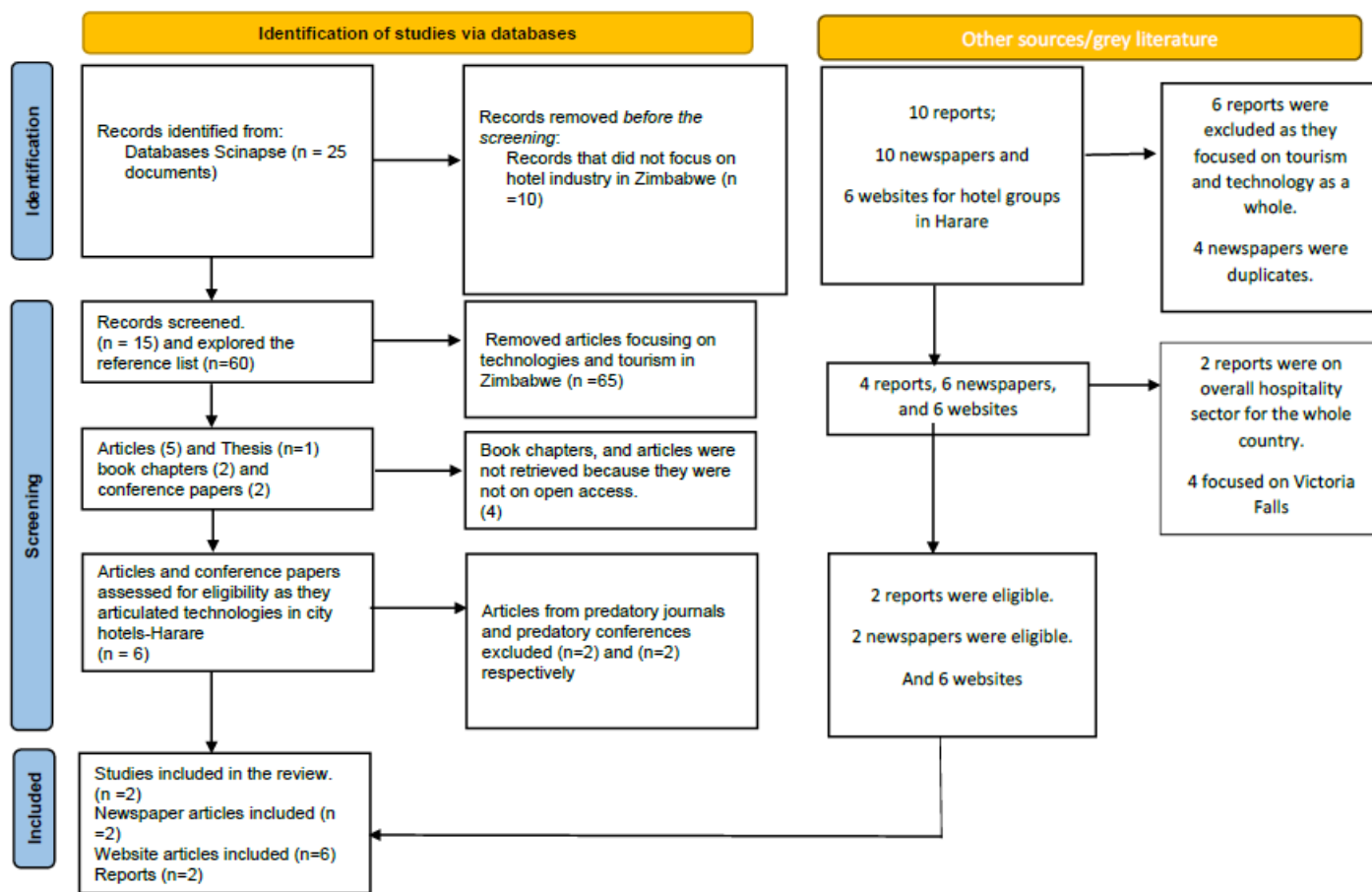
Figure 1: data generation, screening and inclusion

The data was analysed manually using thematic analysis. Themes emerged from the content in the studies, newspapers, reports, and websites included in the review (see Figure 1 above). The data generation considered literature from 2000 to 2022 as the period that marked a transformation of Zimbabwe's socio-economic environment, which implicated the hotel sector in Harare. The study considered full English content. An electronic search used the research question: Which modern technological developments have contributed to shaping the current hotel industry of Zimbabwe? Then, key terms and their synonyms and antonyms were used to find existing literature.

The data was coded based on the types of technologies and how they contribute to enhanced service delivery. Codes were then clustered into themes such as benefits, challenges, opportunities, and issues to be considered by hotel groups and the city hotels that have adopted technologies in Harare. Such is reported as findings below.

Findings and discussion

The chapter findings are presented as follows:

Benefits of technologies among the hotel chain/groups in Zimbabwe
The findings show that modern technologies have penetrated the tourism and hospitality industry quickly. Consequently, technologies are helping hotels to integrate their operations, to remodel their marketing function by providing tools useful for research and development. As a result, the improvements in marketing have helped to enhance total efficiency and also enhanced customer service and partnership building at the same time giving a plenty of strategic business opportunities. In concurrence, Russell, (2019)'s study cited by Mabika, (2020) confirms that new technologies, in particular AI are significantly being used by hotels in waste management, hence reducing the amount of waste being disposed from kitchens.

Increasingly, customers are now expecting their rooms to have ICT services like internet access through a television set and data ports. Internet has significantly enhanced many processes including hotel representation and reservation. An online reservation is particularly convenient for a hotel's repeat customer whose information was already in the system. The demand for these new, efficiency-enhancing technologies increases in proportion to the

size of the hotel. Their demand therefore will increase with increases in the hotel's occupancy capacity, number of transactions, number of departments, and so on.

Challenges faced by large Hotel Chains relating to the use of new technologies:

- **Implementation and Integration of Technology Systems:**

The findings indicate that hotel chains in Zimbabwe, such as Holiday Inn, Rainbow Towers and Cresta hotels, often have more bureaucratic approval and decision-making processes than the small to medium ventures despite being in the same industry. Christensen *et al.* concur that established firms did not allocate sufficient resources for disruptive innovations hence they end up not appealing to the existing customers (2018). Large hotel chains often have the greatest demand for integrated technology system in the areas including, customer relationship management, property management, and point-of-sale. Chi et al. (2020) state that AI is usually characterised by a "family of technology", which presents the challenge of training staff and customers. The hierarchical complexity in the procedures characterising large hotel operations can either lessen the pace at which they embrace new technologies or upgrade the existing systems in comparison to the SME hotel brands. The SMEs are highly reactive to changes in the market. This is a significant challenge for big hotel chains as they lack agility as compared to independently owned smaller operations which are quick in embracing modern technologies. Conversely, Chi, Denton and Gursoy argue that large hotel chains have however been quicker in embracing new technologies such as AI systems' smart lights, smart security cameras, automatic personalised room temperature control, and smart speakers with the aim to enhance the customer experience (2020).

Opportunities:

- **Creating a True Partnership with Software Providers:**

Findings show that hotel chains need to build close working relationships with their ICT solutions service providers as this will allow for seamless support, service, and collaboration. The need to safeguard confidential company information means building a close working relationship with service providers will remain a challenge for the big hotel chains. Schoemaker, Day, and Nyder (2012) stressed that firms face the challenge of handling massive amounts of information while staying focused on the avalanche of data. Dutt *et al.* (2019) also noted that since blockchain uses a peer-to-peer network, it is open to security threats, including hacks and viruses. Hotel chains may have different preferences regarding the type of modern technology solutions to implement. The company has the challenge of deciding whether to use cloud-based solutions for easier access and scalability or use on-premises solutions for greater control and security. Chi, Denton, and Gursoy (2020) further mentioned that network security and information privacy are challenging when an organisation adopts AI, as the hotel and the client cannot protect this information against security risks. However, some scholars mention the importance of Artificial Intelligence (AI) to the hotel sector. In their study, Cheong et al. (2021) examined how AI tools can help restaurants improve service quality and create a better customer experience. Such studies highlight that an organisation can differentiate itself by adopting disruptive innovations.

- **Multiple Brands:**

The findings reveal that many hotel chains may have multiple brands within their portfolio. These may require different technology solutions catering to each brand's needs and requirements (Chi et al., 2020). An example is the Cresta Group, which has hotels and lodges within its portfolio. A five-star hotel operation may need different new technologies from a three-star lodge, requiring less complex technological systems to reduce operational costs.

- **Flexibility in Deployment Options:**

The findings nurture the assertion by Codreanu (2016) that businesses exist in a VUCA environment (an acronym for volatile, uncertain, complex and ambiguous). Modern technology has disrupted the sense of stability and familiarity that managers were used to (Christensen *et al.*, 2018). The hospitality industry is facing massive disruption as a result of the rapid pace at which modern technology is changing (Hassan (2022) & Nam, Chathoth and Khan (2019). For large hotel chains, the continued evolution of the digital age is a big challenge as it requires constant adaptation. This continuous change requires flexibility and agility, which large hotel organisations may lack. Law *et al.* (2015) stressed that it is essential for all organisations to adapt to technologically induced changes to remain competitive in the e-business era. This scenario has presented a challenging landscape, especially for larger hotel chains, which often face a unique set of technology-related questions.

Issues to be considered by hotel chains:

- **Implementation and integration of technology systems.**
The findings agree with Hsu (2023), who quoted Lim and Maglio (2018) as having mentioned that smart hospitality is an essential element of smart cities; Hsu further stated that Harrison et al. (2010: 2) defined smart technology as "connecting the physical infrastructure, the information technology (IT) infrastructure, the social infrastructure, and the business infrastructure to leverage the collective intelligence of the city". From this explanation, smartness is viewed as an interconnected and interoperable ecosystem involving people, society, organisations, and other stakeholders communicating to achieve the same goal. (Yin et al., 2015). Interconnectivity and interoperability mostly rely on smart technologies accompanied by the fourth industrial revolution, including cloud computing, big data analytics, robots, simulation, vertical and horizontal system integration, Internet of Things (IoT), cybersecurity, cyber-physical systems, self-service kiosks, AI, chatbots, face recognition technology, voice-controlled technologies, object detection, augmented reality (AR), VR, among others (Buhalis et al., 2022; Hoyer et al., 2020; Ivanov, 2020; Vaidya et al., 2018). Large hotel chains have multiple options and vendors, resulting in management challenges. For any hotel operation to remain feasible in the highly competitive hospitality industry, it must keep up with latest trends in technology and move with times though it presents a great challenge many large hotel operations especially in the developing world. If an organisation does not quickly adapt, it will be left behind. Alford and Page (2015), highlighted the importance of the adoption of technology for marketing and a clear recognition of its importance in coming up with an agile system for the hotel and its opportunities mainly related to how it could create a more robust market orientation and more agile marketing as customer expectations and requirements are continually changing.

- **Failing to keep up could provide rival companies a significant competitive advantage.**
The findings reveal that adopting technology that appeals to customers results in convenience to them. In their study, Dhoundiyal and Mohanty (2022) concluded that the use of AI and robotics in the tourism industry should result in new heights of customisation, improved service delivery, and management amplified by accurate forecasting techniques.

- **Current trends in technology:**
The findings indicate that delaying upgrading technology is a disadvantage as training requirements become more extensive.

- **Technological disruption in the hotel industry is a challenge.**
The findings reveal significant opportunities due to many internet users, as Mutsikiwa et al. (2021) indicated that social media has revolutionised marketing communication in all aspects of business communication. Social media has become preferred medium of communication, interaction, and networking owing to a lot of advantages it offers to the users including direct communication and helping users to share knowledge at high speed. Like it or not, technology will always progress, and hotel brands in Zimbabwe would need to turn to such tech challenges into competitive advantages when marketing their products.

City hotels adopted technologies in turbulent socio-economic environments
The findings indicate that information communication technologies (ICTs) have revolutionised the hospitality industry as e-tourism has digitalised all processes and value chains (UNWTO, 2020). This section seeks to discuss how hotels in Harare are embracing the modern technologies in their business as a tool to aid decision-making. The section further aims to unpack the extent to which hotels in Harare are adopting modern technologies despite the socio-economic turbulence.

Extant literature indicates that, since the rise of mass tourism after 1960, city tourism has been a fast-growing sector worldwide (UNWTO, 2020; Postma et al., 2017). However, city hotels in Harare have been under severe socio-economic challenges since the beginning of the new millennium in 2000, making it difficult for hotels to embrace modern technologies to their full potential (Muchadenyika, 2020). Generally, Zimbabwe faces challenges like cyclic droughts, political and economic sanctions, high inflation and lack of foreign currency reserves, which all affect hotel enterprises' ability to adopt modern technology (Ndlovu & Chigora, 2019). COVID-19 further aggravated the economic misfortunes of hotels in Harare. Travel restrictions at some point halted city hotel operations, resulting in zero occupancy. Worldwide, the pandemic brought entire socioeconomic structures of some countries to a standstill while posing challenges to how businesses operate (Ranasinghe et al., 2020). The loss of revenue by city hotels in Harare over a protracted length of time stagnated and derailed technological investment, a critical survival tool in this digital era. Significant challenges and opportunities have emerged, and all industry players need a collective approach to embrace them (Mupfiga, 2015).

Based on the findings, the common assumption is that businesses in such depressed economies are more preoccupied with survival than innovation (Kitching et al., 2009). However, this research's view is that economic

hardships may inspire innovation. The need to embrace modern technologies by Harare's city hotels is a necessary move as the Zimbabwean government has introduced a host of measures to facilitate the adoption of current technologies. The measures include the; Information and Communication Technology (ICT) National Policy of 2015, the National ICT policy framework of 2006, the e-Readiness Survey of 2005, and the Cyber Security and Data Protection of 2019.

Findings reveal that internet penetration is low in Zimbabwe's hotel industry due to the high infrastructural costs. Chivandi and Sibanda, (2018) note that challenges limiting the adoption of new technologies by the tourism and travel industry in Zimbabwe include; limited access to technology (computers, connectivity, and gateway to internet), limited bandwidth (which reduces the capacity to handle audio and graphic data), and expensive technology infrastructures. Further, (ibid) argue that the erratic power supply compound the situation in Zimbabwe. It is important to note that international penetration rates are more important than local penetration because the hospitality industry depends greatly on global markets. The cost of the technological infrastructural development is exorbitant as it covers more than one financial year. The high investment price which require technology hardware and software is one of the obstacles faced by the hotel industry in Zimbabwe. Further, for a country in economic turbulence like Zimbabwe, hotels may find some technologies unaffordable to install due to huge capital requirements. These technologies may include; facial recognition or fingerprint recognition, keyless room entry, and smart mirror. Therefore, high cost of the ICT infrastructure may discourage hotels from embracing modern technologies at a fast pace. The internet cost structures in Harare are still on the higher side. Hence, this stifles the hotels' Internet access. As a result, since internet is the basic infrastructure in attempt to embrace modern technologies, without which embracing modern technology becomes an uphill task for a number of hotels in the city of Harare as business is now greatly dependant on fast and efficient internet connectivity. Other things being equal, city hotels require high-speed internet connectivity.

This study found that, despite the fact that modern technologies are increasingly becoming popular in today's business, hotels in Zimbabwe are yet to fully embrace the use of these technologies in their operations. Evidence from the literature review of the major five hotels; Meikles Hotel, Holiday Inn, Cresta Jameson, Crown Plaza Monomotapa, and Rainbow Towers, indicates that modern technologies are yet to be implemented effectively in Harare's city hotels. Generally, the hotels in Harare only use modern technologies in accounting, data management, demand forecasting, guest services management, revenue and reservation management and yield management (Mupfiga, 2015). These functions are done with the aid of management software. However, for some of their operations, the hotels still use manual processes such as occupancy of the guest rooms to recording guest expenditures, up to the eventual departure. Mupfiga (2015) affirms that Zimbabwe's tourism and hospitality sector has embraced modern technologies at a slow pace.

Sahadev and Islam's (2005) study reveals that technological competences influence the adoption of new technologies. The capacity of a hotel to keep pace with new trends in technology and technological development depends to a great extent on its ability to understand how such a technological development could benefit it and whether the hotel is able to assimilate such a technological development into its operations. This is known as the organisational learning capacity. A scrutiny of hotels in Harare reveals that although technology could be available, some hotels' technological infrastructure is still antiquated that it seriously needs upgrading. Some Hotels are still in possession of several outdated versions of software packages which could not serve their business well. Although some hotels are using internet technology to make bookings. However, many of their Internet reservation systems still generate a booking in an email format instead of an integrated hotel booking based on the online reservation system. As a result, the hotel's reservation system will not effectively and efficiently serve its purpose.

Extant literature reveals that some hotels in Harare are not financially equipped to fully embrace modern technologies as this will result in the need to train employees and pay off redundant employees to retrench them. According to Lu, (2019), implementation of new technologies is often accompanied by laying off of employees who would need retrenchment packages in turn. The tourism sector in Zimbabwe is also experiencing the 'brain drain' challenge, like any other sector in the economy. As a result, a lot of human capital is being lost into the diaspora.

The findings also indicate that the organisational structure also affects the adoption of new technologies. The study found that the matrix organisational structure is more appropriate for embracing modern technologies than the product or geographic corporate systems. This is compounded by issues of poor governance by some hotel organisations in Harare. In some hotels, the skilled ICT personnel, who are naturally expected to implement the ICT strategies may not, to a great extent be represented at strategic management levels. Consequently, the qualified ICT practitioners and personnel who would have articulated their important issue may be deprived this opportunity. Moreover, management may further compound this problem as they may procure ICT equipment without consulting the ICT practionors and experts. Generally, the hierarchical structures embrace new technologies at a much slower pace than the matrix and narrow structures. Furthermore, absence of a clear synergy between ICT and other departments in many hotel establishments in Harare worsens this problem to a greater extent. Hence, the departments work as if they are separate silos.

Further, it is observed in the literature that adopting modern technologies requires management support. Where there is extensive management support, there is a broader adoption of current technologies. Literature has shown that lack of management support is one of the reasons why some hotels were slow in embracing modern technologies. Customers also influence the pace at which a hotel can embrace modern technologies. Customers who take a relational stance to their travelling schedules have a tendency of travelling to destinations they have been before. Such customers may stay in a hotel they stayed before; hence, they are comfortable with sticking to a routine. In as far as technology is concerned these customers are laggards and would not encourage a hotel to adopt new technologies.

In addition, it is apparent in the extant literature that hotels with employees who are not ready to accept change brought about by new technology will be a barrier to a successful transition. Generally, the trade unions and employees at large may be slow to accept change brought about by new technologies. For this reason, implementing new technologies is likely to meet resistance. According to Mupfiga (2015), resistance to change by both employees and customers has stifled the adoption of modern technologies by city hotels in Harare. Some customers want to feel and touch the product, which is further complicated by the risks associated with online shopping. Employees generally fear that new technology may replace their skill, hence might result in worker job losses. Moreover, an immediate cessation in the use of traditional operations methods in favour of a spontaneity in the use new technologies might be a challenge. Organizations can only overcome the resistance to change from its employees when it prepares its workers for the change through some training and retraining programs. Therefore, organizations must come up with processes and programs that ensure that employees participate and are consulted at every stage of the change process.

The extant literature also shows that electronic customer relationship management (e-CRM) is huge problem in the Zimbabwean hospitality sector. The sector is deficient to some fundamental information that a tourist would require when wishing to make a holiday decision. Expectedly such information must be readily available on various hotel websites. Nonetheless in Zimbabwean hotels such was not the case. Some hotel organizations rarely responded to queries; and those that did took long to attend to customer queries and complaints (Tsokota, Von Solms and van Greunen, 2017). Moreover, some information on some hotels' websites were outdated. Further, other hotels do not have customer review sites where customer could post comments on the quality services rendered by these various hotels. In addition, for some hotels, there were discrepancies between what the hotels promised on their various advertising platforms and what hotels actually rendered to the customers. It was also noted that there was outdated information advertised. The study can also revealed that lack of integration of some hotels' information systems generally slowed transactions in some hotels as services were offered in a disorganised manner and was worsened by regular electricity power outages. In the study done by Tsokota et al., (2017), some hotels in Harare had challenges of poor bookings caused by confusing reservations. This caused unnecessary arguments between the hotel and the guest and delays. Lack of sufficient information on the websites has also led to the loss of sales by the organisations; since many tourists had opted to go to other destinations (Tsokota, Von Solms, and van Greunen, 2017).

The study found that lack of organisational e-readiness discouraged the adoption of new technology. The environment is an essential factor affecting the adoption of modern technologies by hotels in Harare. The sub-factors of the environment include customer expectations. This study found that customers from the Western nations could unhesitatingly transact on e-commerce platforms as compared to the African nationalities. Therefore, the customers of the Western origin readily accepted and expected modern technologies more than their compatriots from Africa. Furthermore, supplier or partner expectations also impact the rate at which a hotel can adopt new technologies. For example, a hotel doing business with international partners would be obliged to adopt modern technologies.

Results of this study also reveals that Zimbabwe's hospitality sector lacks sufficient financial resources needed to acquire infrastructure, train staff, attract and retain skilled manpower, as well as payment of service providers. As a number of the hotel organisations are experiencing budgetary constraints, ICT is least prioritised. This negatively affects the adoption of ICT new technology as outdated hardware, software and systems are used which may not be compatible with new technology.

The findings reflect that competitive pressure may increase the need for a hotel to use modern technological tools. The tools are essential as they would ensure that the hotel remains endeared to the potential customers just like their rivalries. Lastly, government support is essential to level the playing field in adopting new technologies.

The study found that there is no comprehensive legal framework governing technology adoption by hotels in Zimbabwe. In fact, a comprehensive regulatory framework or policy is required to guide how the entire Zimbabwean tourism and hospitality industry can adopt and implement modern technologies. The government must come up with an ICT policy instrument which shall guide how the whole tourism and hospitality industry can make use of ICT with the aim to support all e-transactions. In addition, the policy will guide how business agreements made online can be recognised as well as how digital signatures can be validated. The Official secrets Act stipulates that all official documents must conform to its requirements. One of the most notable obligations of

the Official Secrets Act is that all official documents must be physically signed and are not to be electronically transmitted. As a result, this limits how modern technologies and ICT in general can be effectively implemented and used by the entire tourism and hospitality industry in Zimbabwe. AlGhamdi et al. (2011) state that a comprehensive piece of legislation is needed to regulate systems and protect the rights of all parties involved in commercial transactions and activities. The absence of a legal framework in Zimbabwe discourages hotels from embracing new technologies as the whole hotel industry players would need such in order to be safeguarded from e-transaction-based fraud.

The findings also reveal that websites are now used for ordering food rather than just gathering information. The tremendous development and commercialisation of technology in hotels has propelled the adoption of modern technologies by many city hotels like Meikles, Harare (Mupfiga, 2015). The integration the existing and new applications and of databases has presented a great challenge to many hotels in Harare because doing so would require a special webserver which adds to the e-commerce cost for which many hotels would not afford.

Meikles Hotel in Harare is a five-star hotel with international repute. This status has persuaded the hotel to adopt modern technologies faster than the other hotels in Harare. The international status compels the hotel to quickly adopt technological changes to improve its service provision through e-commerce. These initiatives are a result of the supportive management at Meikles Hotel whose executive leadership is quite literate in ICT. Resultantly, the Meikles hotel adopted ICT faster as compared to other hotels. Through the adoption of modern technologies, Meikles Hotel has vastly transformed its service delivery including how some services such as bookings are being done. Meikles Hotel has developed a user-friendly website. The website was developed and is maintained by an in-house programmer. The website contains all the information about the hotel which a customer may all wish to know. Meikles hotel has had already started offering wireless network services to guests as early as in 2006. The hotel uses the Fidelio Management System. This technology integrates all the information from different functional areas of the hotel that includes; banqueting, finance and accounting, the reservations, and restaurants departments. The hotel also uses point-of-sale systems.

Contributions/implications

The chapter contributes to the gap in knowledge on how the tourism and hospitality industries in the sub-Saharan states can adopt contemporary technologies, in spite of socio-economic turbulence, with a particular focus on Zimbabwe. There is scant literature in this area. Hence, the proposed research areas are presented as the research agenda for Zimbabwean city hotels and the adoption of modern technologies. The chapter provides insights into adopting modern technology in the city-hotel sub-sector of Harare, Zimbabwe. The findings have implications towards suggesting areas for the Zimbabwean tourism research community to focus on when conducting empirical research on: labour and consumer markets-centric technological usage from an HR lens, co-production, co-consumption and stakeholder value-co-creation, revenue and sales management, guest behaviour, product and service development and innovation to reach strategic target markets, marketing communications, and hotel human capital development to co-create capacity embedded in acquired tertiary skills and knowledge (competencies).

Conclusion

The key challenges and the suitable interventions required by the tourism and hospitality industry in effort to embrace modern technologies have been identified. The study has shown that the level of new technologies usage in Harare is still low due to many challenges that include; the lack of collaboration and poor systems integration, lack of a comprehensive legal framework, lack of infrastructure and enabling services. In addition, Zimbabwe lacks; ICT policy and regulatory framework, financial resources to support investment in ICT. Further, ICT governance is poor; and there is poor human resources development. The next subsection will look at recommendations.

Recommendations

Infrastructure and enabling services are important to allow effective access (Dobrota, Martic, Bulajic, & Jeremic, 2015). Accordingly (ibid) implies that access means ICT infrastructure must be readily available and accessible. The solution to the challenge of infrastructure is having a guiding policy meant to ensure that the infrastructure and enabling services are adequate and accessible.

Tourism organizations need to decentralise power to employees at different levels in order for them to make fast and informed decisions so as to serve the customers efficiently, using ICT to increase customer satisfaction. Hence, hotels can use ICT to; manage hiring of equipment, manage accommodation bookings, provide marketing information and making airline reservations. Travellers can use their ICT devices to access information quickly and make payments through online systems.

Since many tourism and hospitality organisations encounter challenges in galvanising financial resources, this calls for guiding policies two areas, which are in investment and in strategic allocation of resources. Cheng,

Dhaliwal, & Zhang (2013) define investment as the process of acquiring capital. Allocation of resources however refers to the appropriate usage of the organisation's financial resources. In order to attract investment, organisations in the tourism industry must use the resource currently at their disposal efficiently and responsibly. They must as well work to attract new investment.

A guiding policy on skills development is paramount in order to make employees ready to the change brought about by the new technologies. This policy will be instrumental to the whole sector to guide training, support and capacitation of the members of staff on how they can effectively utilise the relevant services.

Lastly, a policy meant to guide how hospitality business can establish appropriate IT governance structures is also is also required. A proper ICT governance structure is essential if the tourism sector is to attract investment and support.

There is a need for a collaborative partnership between the hotel industry, educators (curricula developers), and the tertiary education system to work together to enable contextual perspectives on embracing technologies within the Zimbabwean socio-economic context. As indicated in the literature review section, lessons can be learnt as insights for city hotel policy-makers and decision-makers to relate to the market trends and behavioural patterns. Such can be influenced by the markets' socio-economic backgrounds and preferences and level of expectations on adoption of perceived relevant technologies accordingly.

The literature review recommends that the Zimbabwean government must give due attention to ICT infrastructure. There is need for the government to improve investment in ICT infrastructure through different arrangements like Public-Private Partnerships, Build-Operate and Transfer and others in order to enhance the overall electronic service quality in Zimbabwe and the adoption of e-commerce by both the hotels and the guests. The national budget for the financial year 2020 gave a rebate to the hospitality industry for capital expenditure to enable growth within this section (Government of Zimbabwe, 2021). In a nutshell, the hotels in Harare need to timeously embrace new technologies. The factors contributing to this slow pace are mainly at the organisational level, though there are also macro-environmental influences.

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