PERSPECTIVES REGARDING THE USAGE OF TECHNOLOGY IN THE HOTEL INDUSTRY

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ABSTRACT: *The pervasive integration of technology into the daily lives of individuals and organizations has been a longstanding phenomenon, marked by continual evolution. This progression inherently contributes to novel responses and solutions addressing societal challenges. However, it concurrently poses challenges in maintaining currency within the technological landscape and discerning the most recent and suitable solutions available. The imperative has shifted beyond a mere comprehension of the necessity and advantages associated with technological tools, extending to a nuanced understanding of the specific tools and their optimal utilization for maximum efficacy. Within the realm of hospitality, the trajectory of technological evolution has been notably conspicuous, spanning from the introduction of initial equipment in the nineteenth century to the contemporary application of Artificial Intelligence. Within this dynamic milieu, the concept of Digital Transformation emerges, denoting the systematic leveraging of technology to enhance organizational efficiency and competitiveness across various domains, including management processes, operationalization, and customer relationships. In the hospitality sector, and more broadly within the tourism industry, customer interaction assumes paramount significance. This is particularly salient given the nature of the industry, wherein human contact and interpersonal relationships play a pivotal role in shaping the tourist experience and influencing levels of consumer satisfaction.*

KEY WORDS: *technology, business, competitivity.*

JEL CLASSIFICATIONS: *M10, M29.*

1. INTRODUCTION

Technology has long been ingrained in the daily lives of individuals and organizations, exhibiting a persistent trajectory of evolution. This ongoing progression inherently generates novel responses and solutions to address societal challenges. However, it concurrently introduces complexities in maintaining abreast of the evolving technological landscape and discerning the most recent and suitable solutions. The focal

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point has shifted beyond a fundamental understanding of the necessity and advantages associated with technological tools to a nuanced exploration of specific tools and their optimal utilization for maximal efficacy.

Within the domain of hospitality, the discernible progression of technological evolution is evident, tracing its roots from the introduction of initial equipment in the nineteenth century to the contemporary integration of Artificial Intelligence. Within this dynamic milieu, the conceptualization of Digital Transformation arises, encapsulating the systematic deployment of technology to enhance organizational efficiency and competitiveness across various domains, including management processes, operationalization, and customer relationships.

In the hospitality and broader tourism sector, customer interaction assumes pivotal importance. This significance is underscored by the nature of the industry, where human contact and interpersonal relationships play a decisive role in shaping the tourist experience and influencing levels of consumer satisfaction. While technological processes have the potential to facilitate and enhance the interaction between the hotel and customer, they also bear the risk of creating barriers and complicating this interaction. Consequently, it is imperative to invest not only in the refinement and evolution of technological processes but also in the systematic study and analysis of the evolution of consumer behavior. Additionally, investment in the training and empowerment of human resources is essential to ensure that this interaction remains simultaneously uncomplicated and effective in its processes.

2. ADVANCING TECHNOLOGIES WITHIN THE HOSPITALITY INDUSTRY

Contemporary travelers are presented with a diverse array of lodging options extending beyond conventional hotels, encompassing vacation rentals, hostels, serviced apartments, themed park hotels, castles, tree houses, glamping, underwater hotels, ice hotels, cave hotels, and capsule hotels, among others. The concept of mobile hotels has evolved significantly, evidenced by innovations such as bus hotels (e.g., Cabin, the overnight bus with beds, launched in 2017) and advancements in trailers, further spurred by the exigencies of the COVID-19 pandemic (e.g., Airstream trailers).

Distinctive design, style, and facility equipping have become strategic differentiators for hotels seeking to carve a unique niche. Travelers increasingly seek unconventional and enjoyable lodging experiences, prompting hotels to incorporate elements of novelty. Concepts like personalization, exclusivity, escapism, and unique experiences have become focal points in the hospitality industry, aligning with the contemporary traveler's desire for authentic and memorable encounters.

The trend of solo travel is gaining prominence, with more tourists opting for solitary exploration, fostering interaction, friendships, and cultural integration. To enhance the comfort of solo travelers, hotels are lowering barriers between staff and guests, employing interior design choices that evoke homeliness and foster an informal community atmosphere.

Digital guest experiences have become integral to the contemporary hospitality landscape, with hotels leveraging digital marketing tools to engage with travelers.

The use of apps, coupled with the pervasive influence of social media platforms, has transformed the way guests interact with hotels and share their travel experiences. The accessibility of social media enables travelers to stay connected with hotels throughout the day, enhancing communication and marketing opportunities.

A growing emphasis on health and wellness is influencing the hospitality sector, as travelers prioritize experiences related to health and well-being. Hotels respond by offering healthier menu options, upgrading amenities, providing fitness and wellness facilities, and renovating rooms to create environments conducive to physical and mental harmony.

The pandemic-induced rise of remote work has altered travel patterns, with the hotel industry adapting to accommodate remote employees and digital nomads. Coworking spaces within hotels are emerging as a trend, exemplified by initiatives such as Accor's coworking brand Wojo and the Selina Group's global network of tourist accommodations for digital nomads.

The integration of business and leisure, known as "bleisure," is gaining popularity, providing hotels with an opportunity to cater to professionals combining work-related travel with leisure activities. Sustainability remains a pervasive concern, influencing travelers' choices as they seek environmentally responsible accommodations. In response, hospitality companies are adopting green practices, incorporating energy-efficient measures, waste reduction strategies, renewable energy sources, water conservation efforts, reduced plastic usage, motion sensor technologies, and expanded offerings of meat alternatives. The contemporary traveler's preference increasingly favors hotels that integrate environmental sustainability into their overall business ethos.

3. CLOUD SERVICES

Cloud computing can be characterized as the capability to retrieve files, data, applications, and third-party services via a web browser over the Internet, facilitated by an external service provider. It is conceptualized as a model where users can access diverse information services, including computing, storage, and applications, through the internet without explicit knowledge of the physical location of stored information, the servers supporting applications, or the technical configurations involved. In essence, cloud computing serves as a platform where programs are executed, files are stored, and data is retrieved over the Internet rather than relying on local hard drives.

Various classifications of cloud computing systems exist, encompassing public (an open platform with easily accessible data), private (established and managed in-house by businesses), community (integrating features of both public and private clouds), and hybrid clouds (leveraging a shared platform co-created by multiple organizations). Within this conceptual framework, cloud computing is distinguished by the delivery of services through internet-connected servers without necessitating dedicated software or storage units, accessible through desktop computers, tablets, phones, or smart mobile devices. This paradigm facilitates the widespread dissemination of services and resources, contributes to cost control, and heralds significant transformative potential for global business practices.

Within the context of the hospitality industry, all data generated across various units within the hotel ecosystem is stored in the cloud. The cloud data center not only consolidates statistics and operational data from stakeholders but also enables seamless and unrestricted access. Specifically applied in the hospitality sector, cloud computing finds utility in services such as customer performance monitoring and reporting, inventory management, food and beverage control, staff productivity assessment, and towel tracking. The real-time collection of data from both guests and employees at a centralized point holds considerable value for managerial decision-making processes.

4. THE USE OF BLOCKCHAIN TECHNOLOGY

Blockchain technology (BCT) constitutes an online platform that chronicles transactions and traces assets via distributed ledgers, denoted as shared ledgers within a network. It is characterized as a distributed database or general ledger encapsulating all transactions or digital events conducted and shared among participating entities. In contrast to conventional ledgers, BCT obviates the need for centralized ownership management systems. This implies that ledgers are not confined to a central repository but are distributed across the network, thereby affording users enhanced security, permanence, auditability, anonymity, and decentralized accessibility.

Transactions facilitated on the BCT network encompass diverse options such as monetary transfers, payment for goods and services, hotel room or flight reservations, contractual agreements, and other transactions. Furthermore, BCT has the capacity to mitigate fraud and errors, heighten efficiency and security, curtail paperwork-associated costs, and institute sustainable inventory management, control systems, and vendor transactions, thereby streamlining supply chain management.

The prospective utilization of blockchain technology (BCT) holds the potential to enable companies to establish secure digital records and ensure secure data storage. The adoption of cryptocurrencies as a payment method can alleviate additional costs for travelers when using intermediary platforms, allowing for direct booking of hotel and flight tickets. Blockchain aligns with the needs of tourists by instilling trust, transparency, security, and credibility through the incorporation of transactions into an immutable distributed ledger.

Integration of blockchain in the tourism industry facilitates direct interactions between customers and various stakeholders, diminishing reliance on third-party booking agents. Additionally, the travel and accommodation sectors engage in smart contracts pertaining to the financial records of tourists. The blockchain establishes a shared perspective of a singular transaction wallet, enabling users to book travel tickets, hotels, and restaurant reservations through a unified blockchain-based application employing a single cryptocurrency.

5. THE INTERNET OF THINGS

The Internet of Things (IoT) is a prominent area of research and innovation, serving as a nexus between the physical and virtual realms by connecting numerous electronic devices in residences, vehicles, streets, buildings, and public spaces. This

connectivity presents various opportunities for the emergence of new services. At a systemic level, the Internet of Things can be characterized by three main features:

- *Pervasive Communication*: Intelligent devices can communicate wirelessly, forming impromptu networks of interconnected objects.
- *Digital Identification*: Intelligent devices are assigned digital names, enabling the specification of relationships in the digital domain when physical connections are not feasible.
- *Comprehensive Interaction*: Intelligent devices have the capability to engage with their local environment through sensing and actuation abilities when applicable.

A distinctive aspect of IoT technology is its effectiveness in accessing and utilizing diverse information available on the Internet across various devices, thereby addressing customer needs. The integration of smart technology with IoT data opens up new possibilities for the travel and hospitality sector, facilitating easy access and interaction with information related to transportation, attractions, tours, shopping, and lodging.

In the context of a smart hotel, IoT encompasses intelligent sensing technologies, smart devices, services, and interconnected technical systems. To achieve speed, quality, and comfort in a smart hotel, the development of an intelligent management system is crucial, providing smart and automated control with features like self-awareness, self-prediction, self-optimization, self-configuration, and self-diagnosis.

IoT interventions enable hotels to enhance energy efficiency, reduce greenhouse gas emissions, and improve comfort and convenience for guests. These solutions contribute to sustainability programs, with examples such as occupancy sensors providing vital data and alerts for better energy management and support of sustainability initiatives.

In this context, IoT technologies offer the potential to consolidate multiple systems (e.g., heating, air conditioning, window openings) into a unified platform known as smart management, simplifying guest operations for regulating room conditions (heating, ventilation, lighting, TV usage, sound levels, etc.) through a single device while concurrently optimizing hotel operations.

6. MOBILE APPS

Numerous applications find relevance in the hotel industry, encompassing functionalities such as room reservations, calls, real-time guest feedback through surveys, provision of area information, access to loyalty accounts, restaurant and spa reservations, maps, augmented reality applications, check-in and check-out procedures, as well as room door key and payment transactions.

The advancement of information technologies has empowered guests to exercise control over various aspects of their hotel experience through their smartphones, facilitating functions like acquiring a digital key, accessing rooms, and conducting these operations without physical interaction.

While smartphones and applications offer enhanced convenience, flexibility, efficiency, and entertainment to users, they may also present challenges such as connectivity issues, high battery consumption, charging complications, limited device processing capabilities, and excessive roaming charges.

Consequently, it is imperative for businesses to undertake necessary measures to derive optimum benefits from technology. For instance, strategically placing charging stations throughout the hotel and ensuring high-speed internet connectivity stand out as rudimentary measures that can be implemented to address these concerns.

7. ROBOTIC TECHNOLOGY

Autonomous vehicles, anticipated to undergo further advancements through artificial intelligence, are foreseen to evolve to a point where they can comprehend and empathize with human emotions. In this perspective, the expected outcomes include positive emotions emanating from robotic vehicles, a social multiplier effect, hedonic motivation, human formalism, enhanced performance efficiency, and increased effort. It is envisaged that humans will be engaged not only in executing physical tasks but also in fulfilling behavioral and emotional responsibilities.

Advanced robotic systems are poised to play an increasingly integral role in the operational processes of tourism enterprises in the future. This is attributed to their capacity to establish service quality standards, adhere to hygiene protocols, ensure continuity, and transmit positive behaviors through artificial intelligence.

The categorization of robots encompasses three levels: hardware, functionality, and service. The hardware level encapsulates the mechanical design, incorporating the structure, sensing system (sensors), and motion system (actuators). Functionality pertains to the software architecture, which includes navigation, dialogue, visual and voice recognition, as well as location and mapping mechanisms. Ultimately, service denotes the additional value that a hotel aims to generate and offer to its customers, contributing to the preservation of its competitive advantage.

8. VIRTUAL REALITY

Augmented reality (AR) is defined as the incorporation of virtual objects into the physical world through various applications, creating an enhanced environment. In contrast, virtual reality (VR) involves the simulation of interactive 3D environments by a computer, immersing users in a virtual space and eliciting sensory experiences. Particularly pertinent to the hospitality industry, where the quality of experience is paramount, these applications represent promising technologies with significant implications. The distinctive characteristic of VR lies in its ability to transport users into a fully immersive computer-generated world, detaching them from their physical surroundings.

On the other hand, the concept of the metaverse can be construed as a fusion of augmented reality and virtual reality, constituting a virtual universe devoid of boundaries. Upon entering the metaverse through diverse technological devices, users can engage in activities such as shopping, meetings, concerts, and various social

interactions. The metaverse broadens users' range of movement by eliminating constraints on travel.

These applications empower users to preview hotels, make reservations, access business information, navigate destinations, translate written and spoken content, and explore dining and entertainment options. Consequently, these technologies play a pivotal role in enhancing accessibility and marketing within the tourism industry. While exhibiting strengths such as providing a secure environment, offering alternative access, enriching information, and fostering experiential development, these applications are not without weaknesses, encompassing considerations such as cost, technical expertise, security concerns, and reliability issues.

9. CONCLUSIONS

In summary, contemporary tourists seek personalized services, a distinctive offering that sets hotels apart in an industry characterized by numerous substitutes and susceptibility to imitation. The infusion of technology into hotel processes serves to enhance the quality of guests' experiences, rendering their holidays both enriching and enjoyable. Beyond the fundamental expectations of comfort and tranquility reminiscent of home, hotel guests now demand a comprehensive fulfillment of their diverse needs. Consequently, businesses must attend to every guest request, recognizing that technological infrastructure investments in the hotel sector initially entail significant costs. However, when subjected to long-term evaluation, these investments prove instrumental in maximizing process efficiency, elevating employee performance, and ensuring the highest levels of customer satisfaction.

Businesses that strategically invest in technology in the hotel industry, a foundational element of tourism, are poised for enduring advantages. Remaining current, catering to the demands of new and tech-savvy tourists, enhancing performance, streamlining control mechanisms, and proficiently managing information are imperative objectives facilitated by technology.

The future trajectory of the sector lies in substantial investments in technology and innovation, positioning businesses with knowledge and technological capabilities as key determinants of success. Given the labor-intensive nature of the hotel industry, managers must contemplate technical and technological advancements. Collaboration with technology developers enables hotel businesses to spearhead progress in the field, seize emerging opportunities, and pioneer the development and utilization of novel technologies.

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