Strategies and Barriers to Technological Innovation in the Hospitality Industry: A Qualitative Exploration

Konaklama Endüstrisinde Teknolojik İnovasyona Yönelik Stratejiler ve Engeller: Nitel Bir Araştırma

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Abstract

Innovation plays a crucial role in the success of the hospitality industry, leading to numerous positive organizational outcomes. The concept of technological innovation in the hospitality industry has garnered significant attention, particularly due to the widespread impact of emerging technologies on organizations. The purpose of this study is to identify technological innovation strategies and barriers to successful innovation practices in the hospitality industry. 17 hospitality professionals worldwide, selected through judgment sampling, constitute the participant profile of this study. The current study, based on a qualitative research design, used qualitative textual analysis to identify patterns in the data set. QSR NVivo 10 software was used to identify major themes from the transcripts. As a result of the analysis, 4 technological innovation strategies were identified, namely setting strategic direction, culture of innovation, organizational alignment and collaboration and partnerships, and 4 barriers were identified, namely lack of understanding technology, data overload, failure to meet user needs and the speed of change, which pose obstacles to innovation in the hospitality industry. This study contributes to innovation research in the hospitality literature by providing an in-depth evaluation of technological innovation strategies and the barriers in this process and approaching the topic holistically.

Keywords

 Innovation, technology, technological innovation, innovation strategies, hospitality industry

Öz

Yenilik, misafirperverlik sektörünün başarısında önemli bir rol oynar ve çok sayıda olumlu organizasyonel sonuca yol açar. Misafirperverlik sektöründe teknolojik yenilik kavramı, özellikle ortaya çıkan teknolojilerin organizasyonlar üzerindeki yaygın etkisi nedeniyle büyük bir ilgi görmüştür. Bu çalışmanın amacı, konaklama endüstrisindeki teknolojik inovasyon stratejilerini ve başarılı inovasyon uygulamalarının önünde yatan engelleri belirlemektir. Yargısal örnekleme yoluyla seçilen dünya çapındaki 17 konaklama profesyoneli bu çalışmanın katılımcı profilini oluşturmaktadır. Nitel bir araştırma tasarımına dayanan mevcut çalışma, veri setindeki kalıpları belirlemek için niteliksel metin analizini kullandı. Transkriptlerden ana temaları belirlemek için QSR NVivo 10 yazılımı kullanıldı. Analiz sonucunda stratejik yön belirleme, inovasyon kültürü, örgütsel uyum ve işbirliği ve ortaklıklar olmak üzere 4 teknolojik inovasyon stratejisi belirlenmiş ve teknolojiyi anlama eksikliği, aşırı veri yüklemesi, kullanıcı ihtiyaçlarını karşılayamama ve değişimin hızı olmak üzere konaklama endüstrisinde yeniliğin önünde engel oluşturan 4 engel tespit edilmiştir. Bu çalışma, teknolojik inovasyon stratejilerinin ve bu süreçteki zorlukların derinlemesine değerlendirilmesini sağlayarak ve konuya bütünsel olarak yaklaşarak konaklama literatüründeki inovasyon araştırmalarına katkı sağlamaktadır.

Anahtar kelimeler

 İnovasyon, teknoloji, teknolojik inovasyon, inovasyon stratejileri, konaklama endüstrisi

Introduction

Technology has initiated a significant transformation in the hospitality industry (Shin et al., 2023). Emerging technologies such as the internet of things (IoT), artificial intelligence (AI), virtual reality (VR), and augmented reality (AR) have impacted the service industry, including hospitality (Rane et al., 2023). Technology adoption has therefore become critical in the hospitality industry to meet guests' needs and expectations and differentiate themselves in a competitive market (Zhang et al., 2023). In such a competitive environment, technology-based innovations provide opportunities for hotels to offer unique experiences to their guests and gain a competitive advantage (D'Souza and D'Souza, 2023). However, alongside the opportunities that technological innovations offer to the hospitality industry, there are also challenges (Martín-Rios and Ciobanu, 2019). Overcoming these obstacles is essential for successfully adopting technology and innovations (Estrada et al., 2023). This new landscape has thus required organizations to change the way they do business, redesign processes, and systems in order to survive and gain a competitive advantage (David and Cormican, 2006). Given that technological change is a dynamic process requiring the transformation of the innovation system, an adaptive approach to the innovation system is essential for understanding and managing this change (Hekkert et al., 2007). Innovation is therefore seen as the foundation of success in the hospitality industry, as it enables increased efficiency and profitability while meeting customer needs (Molina-Castillo et al., 2023). With the technological transformation process, consumer behavior has also changed significantly, making it inevitable for the service industry to offer innovative products and services (Tai et al., 2021). For this reason, organizations are seeking new ways to differentiate the products they offer in response to increasing customer demands (Kitsios and Grigoroudis, 2020), pushing them to go beyond traditional innovation and develop new strategic models (Martín-Rios and Ciobanu, 2019).

The growing significance of technology in the hospitality industry has prompted research into the link between innovation strategies and various factors, including economic sustainability (Njoroge et al., 2019), performance (Ebersberger et al., 2021), and employee creativity (Kattara and El-Said, 2013). Other studies have focused on service innovation strategies (Victorino et al., 2005; Horng et al., 2016; Kuo et al., 2017). Conversely, Martín-Rios and Ciobanu (2019) proposed a theoretical model examining the relationships between technological and non-technological innovation strategies in the hospitality industry. Backman et al. (2017) investigated the determinants of innovation in the hospitality industry using a quantitative research design. Similarly, Feniser et al. (2018) conducted a quantitative study to identify the factors driving innovation in the industry from the perspective of managers. Horng et al. (2016) used a qualitative research design, interviewing experts with experience in hotel management to explore the fundamental characteristics of sustainable service innovation. Kallmuenzer (2018), using a qualitative approach, sought to determine which actors drive innovation in family-owned hospitality firms. Additionally, Sharma (2016) identified the challenges faced by hotels during the adoption of technological innovation from the perspective of hotel owners and senior managers through qualitative research. Despite the increasing research on technology-driven innovation and innovation strategies, there is a need for an up-to-date study that addresses technological innovation strategies and barriers in the hospitality industry from a holistic perspective. Therefore, this study aims to explore the innovation strategies necessary in the technological age and the barriers encountered in this process, providing insights from hospitality professionals. The findings of this study could guide hospitality industry managers in developing effective technological innovation strategies to gain a competitive advantage and assist hospitality authorities and policymakers in designing policies and initiatives to overcome barriers in the innovation process.

1. Literature Review

1.1. Technological Innovation Strategies and Barriers in Hospitality

Innovation is defined as 'the complex interactive process of creating and spreading technological knowledge which holds special relevance for the growth, employment, and competitiveness of economies' (Martínez-Román et al., 2020, p. 2). According to Wasik et al. (2023), innovation involves the successful implementation of new ideas. It is critical to long-term success and profitability in the hospitality industry (Santa et al., 2023). In other words, innovation enhances efficiency, reduces costs, increases profits, and meets customer needs, thereby playing a vital role in the industry's success (Molina-Castillo et al., 2023). Today, technological innovations have become increasingly important in hospitality (Kazandzhieva et al., 2017). Given that technological innovation primarily addresses operational aspects in the hospitality and tourism industry, strategic technology adoption is on the agenda for successful management practices (Shin et al., 2023). Hotels must implement strategic measures to survive and adapt to innovations (Kitsios and Grigoroudis, 2020). Therefore, innovation strategies are necessary to achieve success in a highly competitive environment (Martín-Rios and Ciobanu, 2019). There are four types of innovation: product, process, marketing, and organizational (Martín-Rios and Ciobanu, 2019; Morched et al., 2023; Lim et al., 2024). In the context of innovation strategy, product and process innovations are typically linked to technological developments (Gunday et al., 2011), while marketing and organizational innovations fall under non-technological innovations (Schmidt and Rammer, 2007). This study focuses on product and process innovation strategies associated with technological developments.

Product/service innovation involves improving products or services in ways that directly affect customers (Park et al., 2023). The success of a product innovation strategy depends on how distinct the products are and how well they meet customer needs and expectations (Sembiring and Sitorus, 2022). Therefore, hotels must adapt to changes by focusing on customer preferences and leveraging technologies that create a competitive advantage (Setianingsih and Nursaidah, 2023). Service innovation in hotels often involves utilizing new knowledge and technologies or novel combinations of existing technologies (Martín-Rios and Ciobanu, 2019). Recently, there has been a growing focus on using augmented reality (AR) and virtual reality (VR) to create unique customer experiences (Zhong et al., 2023; Lee et al., 2024). Information technologies (ITs), on the other hand, support information sharing and production processes between businesses and customers, and accelerate the delivery of new services (Kitsios and Kamariotou, 2021). Online review sites, where customers share their experiences with products and services, provide hospitality managers with valuable insights into customer perceptions (Niu and Fan, 2018). According to Kitsios and Kamariotou (2021), involving frontline employees in this process is crucial, as they are in close contact with customers and contribute to innovative services by offering ideas that enhance understanding of customer needs. Additionally, the skills and knowledge of employees play a significant role in developing new services (González-González and García-Almeida, 2021). Alignment with business strategies is another critical factor in the new service development process, as it helps managers understand and implement effective strategies (Kitsios and Kamariotou, 2021).

Process innovation is about implementing new and useful ideas to improve processes (Lim et al., 2024). It encompasses changes in delivery methods to provide new or enhanced services (Martín-Rios and Ciobanu, 2019). In the hospitality industry, process innovation is crucial as it boosts productivity and creates value for both organizations and customers (Tweneboah-Koduah et al., 2020). Examples encompass deploying new software systems or automating routine tasks (D'Souza and D'Souza, 2023). For instance, interactive AI-based kiosks are emerging as innovations that enhance customer service experiences compared to traditional kiosks (Kim et al., 2022). Many restaurants now use online menus to simplify customer decision-making (Khan and Khan, 2009). Innovative technologies like the Internet of Things (IoT) and artificial intelligence (AI) are expanding the role of technology by addressing customer needs (Singh et al., 2019). Effective technology integration is key to leveraging these innovations (Mushtaque et al., 2022). Continuous integration of acquired knowledge through collaboration is vital in the innovation process (Nissen et al., 2014). Successful technology integration also requires specific skills and competencies (Laouni, 2021). Investing in employee skills is necessary to deliver effective customer service (Park et al., 2023). Research indicates that a lack of technological knowledge and skilled employees can hinder the initiation of technological innovations (Talegeta, 2014). Additionally, Egan and Haynes (2019) identified data overload and the need for rapid decision-making as obstacles in big data implementation within the hotel industry. Moreover, innovations that are incompatible with existing workflows or do not meet user needs can lead to resistance, creating barriers to usage (Laukkanen et al., 2007).

The technology and innovation process in the hospitality industry can be explained by various theories. One key theory is the Technology Acceptance Model (TAM), proposed by Davis (1989). According to the TAM theory, users tend to use technologies that help them work efficiently in performing tasks If users perceive a technology as useful and easy to use, they are more inclined to embrace it. Another influential theory is Rogers' Diffusion of Innovations Theory (Rogers, 1995), which explains how innovations are adopted and disseminated. This theory identifies four critical factors in the spread of an innovation: (i) it must be classified as an innovation, (ii) it should be communicated through specific channels, (iii) it needs to be adopted among members, and (iv) the time factor must be considered. In the hospitality industry, this theory helps explain the impact of technology and its adoption over time (Molina-Castillo et al., 2023). The Service-Dominant Logic (SDL) theory proposed by Vargo et al. (2008) suggests that users play a crucial role in creating value, as value is derived from the user's interaction with the technology. This theory emphasizes the importance of user experience and interaction. Additionally, the Experience Economy Theory (Pine and Gilmore, 2011) addresses technology adoption from the perspective of user experience. According to this theory, consumers are willing to pay more for emotionally engaging and unique experiences. Thus, the hospitality industry should focus on technologies that provide unique experiences to attract customers.

2. Methodology

2.1. Research Design

This research adopted a qualitative research design to gain a deeper understanding of hospitality experts' perceptions regarding the strategies needed for successful innovation in the hospitality industry and the barriers within the rapidly evolving technology environment. As such, this research is exploratory in nature. Qualitative research was chosen as it effectively reveals participants' perspectives and perceptions concerning the phenomenon (Saleh et al., 2022).

2.2. Data Source

The research data is derived from the post titled 'Meaningful innovation, or technology for technology's sake?'

initiated by a moderator under the World Panel section on the website www.hospitality.net, where 17 hospitality experts shared their opinions. The dataset was accessed from the hospitality.net website on January 10, 2024. Participants were selected using the judgment sampling technique, which involves including information-rich cases or participants relevant to the topic of interest (Demir and Ventura, 2021). This technique is particularly suitable when working with small sample groups (Saunders et al., 2000). Therefore, it was deemed the appropriate method for selecting participants for this study. Of the 17 participants, 13 work in consulting companies, two hold various managerial positions in hotels, and the remaining two serve as commercial strategy leaders and revenue management experts in the industry. In terms of geographical distribution, the majority of participants are from America, followed by Europe. The descriptive characteristics of the participants are presented in Table 1.

Table 1. Profiles of the Professionals Participating in the Panel

Participants	Gender	Position	Base
1	Male	CEO of a hospitality consulting company	Belgium
2	Male	Founder of a technology company	Germany
3	Male	CEO of a hospitality consulting company	USA
4	Male	Chief commercial officer of a hotel management company	USA
5	Male	Commercial strategy leader	USA
6	Male	Director of a hospitality consulting company	Spain
7	Male	Hospitality & online travel tech consultant	USA
8	Male	CEO of a hospitality consulting company	Sweden
9	Female	Director of a management consultancy and technology company	USA
10	Male	Revenue management expert	USA
11	Female	Chief product officer of a hospitality consulting company	Australia
12	Male	Corporate Director Revenue Management of a hotel group	Spain
13	Male	Global head of a hospitality consulting company	USA
14	Female	Product Manager of a travel and hospitality consulting company	UK
15	Female	Director of a hospitality consulting company	USA
16	Male	SVP sales, marketing, & revenue management of a hotel group	USA
17	Male	CEO of a travel and hospitality consultancy company	Italy

2.3. Data Analysis

We conducted a qualitative textual analysis to identify innovation strategies and barriers in the hospitality industry. Qualitative textual analysis is a process of creating and defining meaning by dividing texts into specific meaning groups, focusing on how individuals make sense of certain phenomena (McKee, 2003). This research employees McKee's (2003) three-stage model of text analysis: (i) determining research questions, (ii) identifying and organizing texts related to the research question, (iii) interpreting the findings. The first stage of the textual analysis involved determining the research question, and this process was conducted considering the following research

question: What are the technological innovation strategies in the hospitality industry and the barriers in this process? The second stage involves identifying and analyzing texts that would answer the research question. The website www.hospitality.net, detailed under the "Data Source" section, served as the data source for this textual analysis. The data was first recorded in a Word file, consisting of one post with 3,927 words. The data set was carefully read and the parts that were relevant to the purpose of the research were underlined. Then, meaningful extraction was identified by analyzing the contextual features of the text. At this stage, the data set was divided into parts and a unique code was assigned to each segment. These codes were subsequently grouped into relevant themes, and a composite summary reflecting the research's purpose was created. In the analysis phase, two researchers coded the transcripts separately, and the coding results were subsequently compared. The coders were experts in the field of tourism with experience in conducting qualitative research, ensuring that the coding process met the reliability criteria of qualitative research. As Golafshani (2003) points out, the reliability of a qualitative study depends on the researcher's skill and expertise. Data analysis was performed using NVivo 10, a qualitative analysis software chosen for its ability to facilitate in-depth analysis through coding, categorizing, and theme creation (Strauss, 1987; Patton, 2002). In the final phase of the analysis, the findings were presented with carefully selected quotes from participants. Quotations were chosen with care, ensuring they accurately reflected the relevant topics (Eldh et al., 2020).

3. Results

The themes, subthemes, and respective conceptual codes that emerged from the analysis are depicted in Table 2. Each is presented below with quotes, providing the raw data that informs the analysis.

Table 2. Overview of Themes and Subthemes of Thematic Analysis

Themes	Subthemes	Conceptual codes
1. Innovation strategies	Setting strategic direction	● Setting clear objectives ● Balanced approach ● Customer centric approach ● A smart strategy ● Highlighting actionable insights
	Culture of innovation	● Knowledge and expertise ● Creativity and ideas ● Mindset change
	Organizational alignment	● Technology integration
	Collaboration and partnerships	● A collaborative approach ● Hospitality tech advisor
2. Barriers	Lack of understanding technology	● Dependency on software company ● Unskilled workforce
	Data overload	
	Failure to meet user needs	
	The speed of change	

3.1. Theme 1: Innovation Strategies: This theme highlights the need for strategies to adopt and implement technology in the hospitality industry. The innovation strategies include 4 sub-themes and 14 conceptual codes.

3.1.1. Setting Strategic Direction: This sub-theme emphasizes the importance of establishing a strategic direction—setting clear goals, adopting a customer-centric approach, and maintaining a balanced strategy—to achieve successful innovation in the hospitality industry.

Setting Clear Objectives: Some participants state that for innovation strategies to be successful in the hospitality industry, objectives must first be clear. As P13 explained: As P13 explained: *"While the COVID-19 pandemic brought the travel industry to a standstill, it opened gateway to rapid innovations which are reshaping the way hotels serve the evolved guests. There is no doubt that innovation is at the heart of revival of the hospitality sector. However, innovation without a clear purpose can lead to challenges within the industry."*

Balanced Approach: Another strategy emphasized by the participants was the need for a balanced approach. Participants noted that to fully benefit from the advantages of technology in the hospitality industry, it is essential to find a balance between technology and the human touch. As P14 stated: *"Meaningful innovation in the hospitality industry lies in striking a balance between leveraging abundant data and maintaining a focus on actionable insights. By combining human expertise and machine power, the industry can tap into technology's full potential - and ultimately drive truly unprecedented outcomes."*

Customer Centric Approach: Participants emphasized that customers should be considered in the process of designing and developing new technologies, and that steps should be taken based on an understanding of their desires and expectations. As P13 explains: *"Meaningful innovation in hospitality follows core principles such as a guest-centric approach, streamlined operations, scalability, adaptability, and data-driven decision making... Understanding guest desires enables hotels to create genuine connections." (P13)*

Another issue emphasized during this process was the importance of focusing on user feedback for newly developed software or innovations: *"Sort the issue and then you can gather user feedback to make it more efficient - ie less clicks to get to the result, different colors, visualisations, etc. so the UX of how the problem was solved changes. We for example focus on "making you a better you". so all we do is 100% dedicated to help grow revenue through clearer, better and faster decision making - but in a planned way, not hasty."* (P2)

A Smart Strategy: This involves developing plans and evaluating new ways of working by implementing a smart strategy, enabling hospitality authorities to effectively use technology and manage the challenges brought by technology and data overload. As P15 stated: *"Once the technology has been selected, a detailed plan should be prepared, including the organization's readiness for the transformation. People and processes need to be considered carefully to ensure the technology adds maximum value. An evaluation of which tasks will become irrelevant, as well as new ways of working, is essential."*

Highlighting Actionable Insights: Another innovation strategy involves actionable insights that drive the development of new products and product categories. Accordingly, it is suggested to first examine the available data and then analyze it to realize these insights: *"The hospitality industry is experiencing a technological revolution that brings meaningful innovation benefiting all stakeholders. In the past, the industry faced a lack of data insights, but in recent years, there has been an influx of information. To navigate this abundance of data, the industry is challenged with the next crucial step: highlighting actionable insights that prompt users towards impactful decision-making. Collecting vast amounts of data from various sources is the necessary initial phase. The true value lies in the ability to effectively analyse, interpret, and extract relevant insights from this information. I expect to see the tech sector gravitate towards this approach, focusing on translating insights into actionable steps." (P14)*

3.1.2. Culture of Innovation: This sub-theme focuses on creating an organizational environment that encourages the adoption and integration of technology in the hospitality industry, values new ideas and creativity, and inspires a change in mindset.

Creativity and Ideas: In this process, to understand users and create a more functional system based on their experiences, an application programming interface is proposed. This interface allows different software applications to communicate with each other and perform various functions. As P10 stated: *"It's impossible to halt progress. Technology is here to stay and will continue to advance. Hoteliers need to be strategic in their adoption of technology... Tech solutions must interface with your current tech stack and be future-proof for interfaces with new solutions. API rules the world."*

Knowledge and Expertise: Another innovation strategy mentioned by participants was ensuring that employees possess the knowledge and expertise needed to use technology effectively. To easily adopt technology and maximize its benefits, it is essential to invest in employees who have both expertise and technological knowledge: *"At the same time, more reliance on technology does not necessarily mean that humans will be replaced completely. On the contrary, adding more technology in hotels and resorts will require management companies/ owners to find and retain tech-savy staff, who can actually maximize use of the new tools and applications and apply a "common-sense" approach in situations which are not covered by the algorithms programmed into the apps." (P5)*

One of the participants emphasizes the importance of training in this process as follows: *"Empowering staff with technology through comprehensive training helps them embrace technology to deliver exceptional service."* (P13)

One suggestion for ensuring that employees have the necessary knowledge and expertise in technology is to include a technology course in the hospitality school curriculum: *"Why not ensure that technology becomes an integral part of every hospitality school curriculum? By implementing tech training in hospitality education, we're setting up future professionals to proficiently utilise these tools. This approach creates a cooperative relationship between humans and machines, leading to more collaboration and productivity in the industry."* (P14)

Technology Integration: Ensuring the use of integrated service software and technologies to provide meaningful innovation and enhance services in the hospitality industry was another key issue emphasized. As stated by P8: *"The time is ripe for hoteliers to adopt a strategic approach to modernizing their outdated tech stack to better align with the demands of a post-pandemic world. This involves more than just embracing new technologies; it requires thoughtful integration of these technologies to resonate with larger business goals and drive sustainable growth."*

Mindset Change: It is pointed out that a change in mindset is necessary to ensure the adoption and integration of new technologies, thereby achieving meaningful innovation. As noted by P15: *"People's roles, responsibilities, and mindsets need to evolve –not necessarily change – but evolve as appropriate, and new processes and procedures will be created to ensure adoption and integration of the new technology takes place.... Meaningful innovation is achieved only when we also change our habits and mindset to take full advantage of what has been developed."*

3.1.3. Organizational Alignment: This sub-theme emphasizes that, to achieve meaningful innovation, technology must align with the organization's values, goals, and vision. As one participant stated: *"Evaluation of the right technology for your organization and culture is a key step missed in many cases. This decision should be in alignment with the organization's vision and goals and support the right strategy."* (P15)

3.1.4. Collaboration and Partnerships: This sub-theme emphasizes the importance of collaboration between technology providers and the hospitality industry to ensure successful innovation.

A Collaborative Approach: Some participants noted that human workers and robots, as well as hoteliers and technology providers, should collaborate rather than compete in this process. As P17 noted: *"When I introduced the term "post-human hospitality" a decade ago, I intended to highlight a point in time, a "travel" singularity, where artificial and biological hospitality workers could collaborate harmoniously rather than compete."*

Hospitality Tech Advisor: In the context of partnerships with technology providers, including hotel technology consultants in the technology design phase is said to facilitate adaptation and yield numerous benefits: *"One of the main challenges with hotel tech is that many new programs are being developed by engineers without input from the actual user. Whatever is "beautiful", "cool" or "elegant" may not always meet the needs of the user - be it hotel staff or guests. Involving advisors with hands-on hotel experience in several areas early in the design/ concept phase of a new development will be key to adaptation, allowing use to the fullest extent and maximum ROI."* (P5)

3.2. Theme 2: Barriers: This theme focuses on factors that hinder the successful innovation, adoption, and integration of new technologies in the hospitality industry. The barriers include 4 sub-themes and 3 conceptual codes.

3.2.1. Lack of Understanding Technology: This subtheme highlights the lack of understanding in the hospitality industry regarding how technologies should be implemented and how to address the problems encountered. As stated by P12: *"However, there are also challenges associated with the rapid evolution of technology in the hospitality industry. Some companies have misunderstood the concept of digitalization, resulting in the hasty adoption of numerous programs and technologies that overwhelm teams and hinder their ability to work effectively. Instead of implementing solutions strategically, there is often a lack of understanding regarding the purpose and proper integration of these technologies into the overall digitalization strategy."*

Dependency on Software Company: One difficulty faced by hoteliers in the innovation process has been their dependence on travel companies and other technology software providers, due to a lack of investment and emphasis on technology. This was illustrated by P7: *"The technology underspend has clearly increased hoteliers' dependency on the OTAs. It's no wonder that over the last 3 years the OTAs have increased their market share at the expense of the hotel direct channel. By investing heavily in technology applications to engage the traveler at all possible touchpoints of the digital customer journey, the OTAs have monopolized the guest relationships and left hoteliers to do… the housekeeping and dirty laundry."*

Unskilled Workforce: Another difficulty in this process is the presence of employees who lack the necessary knowledge and skills to understand the complex processes of emerging technologies in the hospitality industry and to use technology effectively. This issue was highlighted by: *"The pandemic has not changed the industry's overemphasis on immediate problem-solving, often at the expense of long-term strategic thinking. Due to the impact*

of the pandemic on the labor force, there is now a shortage of skilled workers... Furthermore, the issue isn't merely about adopting technology but the intricate process of mastering it. This is particularly challenging when technology must be used by a broad spectrum of hotel employees, who may lack the in-depth knowledge required to leverage these tools effectively." (P8)

3.2.2. Data Overload: With emerging technology, a large amount of data is produced and stored. As a result, the increasing volume and complexity of data present new challenges, such as: *"Fast forward to the past decade, and the tables have turned dramatically. Hoteliers now find themselves swimming in an ocean of data. Multiple logins and an escalating volume of data points present a new challenge: making sense of disparate data sets that sometimes lead to conflicting conclusions." (P14)*

3.2.3. Failure to Meet User Needs: Another challenge in ensuring a successful innovation process is the development of software programs without considering user expectations and needs. As P5 noted: *"One of the main challenges with hotel tech is that many new programs are being developed by engineers without input from the actual user. Whatever is "beautiful", "cool" or "elegant" may not always meet the needs of the user - be it hotel staff or guests."*

3.2.4. The Speed of Change: The rapid pace of change driven by emerging technology accelerates the process and introduces complexity. As P9 stated: *"Evaluating new technology solutions has always required a healthy balance of creativity and discipline, and the current environment is no different. Although, in fairness, the speed of innovation and complexity of the available solutions today is adding some challenge for sure!".*

Conclusion and Discussion

The current study employed qualitative textual analysis to explore effective methods for advancing technological innovation in the hospitality industry and to identify barriers to this process. Based on the perspectives of hospitality industry professionals, four main strategies and the associated barriers have been identified within the context of successful innovation practices in the industry.

The first innovation strategy identified in the research was related to setting a strategic direction. This finding aligns with Cooper and Edgett's (2010) view that a comprehensive innovation strategy should be based on clearly defined objectives. It also supports Lendel and Varmus's (2011) argument that adopting and implementing a well-defined innovation strategy is crucial for successful innovation. Another key point highlighted was the need for innovation strategies to balance the relationship between people and technology while prioritizing customers. Research indicates that effective robot–human collaboration, facilitated by appropriate strategies, offers benefits such as sustainability, productivity, and employee well-being (Lin and Lukodono, 2021). Similarly, Buhalis et al. (2023) identified customer centricity as a key driver of smart hospitality within emerging technologies. Dash (2024) found that a customer-focused strategy enhances organizational performance, and Nik Hashim et al. (2022) emphasize that innovation strategies ignoring customer needs and expectations are likely to fail.

Another innovation strategy identified in the research was the creation of an innovation culture. This finding is consistent with Tajeddini and Trueman's (2012) assertion that organizations should cultivate an innovative culture to gain a long-term competitive advantage. The research also highlighted that employees with knowledge and expertise compatible with technology are key drivers of the technological innovation process. Supporting this, Njoroge et al. (2019) identified technology usage as a crucial driver of innovation strategy in the hospitality industry. Additionally, Edghiem and Mouzughi (2018) found that the knowledge acquired by service employees in hospitality plays a significant role in initiating innovation. Another important factor in technological innovation was the development and implementation of creative ideas and applications. Previous studies have shown a positive correlation between creativity and innovation (Miron et al., 2004; Sarooghi et al., 2015; Sozo and Ogliari, 2019). In the study, participants suggested that technology integration is essential for a successful innovation process in the hospitality industry. Similarly, Lee et al. (2021) found that specific types of technology integration can provide customers with unique experiences in the service innovation process.

Another innovation strategy emphasized by hospitality professionals was that technology should align with the organization's values and goals. Supporting this, Tadeu and Silva (2014) found that the success of innovation in organizations depends on the alignment between the organization's goals and strategy. Participants also advocated for collaboration both within and outside the organization as a key factor for achieving successful innovation in hospitality. This supports the notion that collaboration with other actors is crucial for innovation in the hospitality industry, facilitating the sharing of ideas and knowledge creation (Backman et al., 2017). Research has demonstrated a positive relationship between collaboration and innovation (Pongsathornwiwat et al., 2019; Jimenez-Jimenez et al., 2019; Awan et al., 2020). The barriers identified in the study align with findings from relevant literature. Specifically, a lack of skilled workforce, insufficient technological knowledge, and failure to address customer needs have been identified as obstacles to achieving innovation (Jessica Hwang and Lockwood, 2006; Andrikopoulos and Khorasgani, 2018). Additionally, difficulty managing data overload and emerging technology was noted as a barrier. Chandra et al.

(2019) highlights that data overload can cause technostress, impeding creativity in the innovation process. Furthermore, the rapid pace of technological change has emerged as a significant challenge. Reynolds (2000) notes that the adoption of new technologies can be difficult and lead to uncertainties due to the speed of growth.

This research also has implications for managers. Hotels can direct their innovation activities by analyzing the factors driving innovation identified in this study and developing strategies to overcome the associated barriers. The findings particularly emphasize the need for setting a strategic direction and adopting a customer-focused approach. Customer centricity, in particular, plays a crucial role in the value creation process for smart hospitality businesses (Buhalis et al., 2023). Therefore, it is vital for the hospitality industry to consider customer needs when designing and developing new technologies, and to align these technologies with customer expectations. Involving both internal and external stakeholders at this stage can contribute to a successful innovation process. The study also highlights the importance of fostering an innovative culture within the hospitality industry. It is crucial for hospitality managers to create an organizational environment that encourages employees to generate innovative ideas. Hospitality managers can promote an innovative culture by integrating technological innovation into HR policies and practices. This includes organizing routine training programs to ensure employees acquire knowledge and skills compatible with emerging technologies. By investing in employee training, hospitality establishments can reduce their dependence on software companies for technological support.

The research also has some limitations. First, the findings are largely based on the opinions of participants from America and Europe. Including participants from a broader range of geographical regions could provide additional perspectives on the topic. Second, this study examined technological innovation strategies in the hospitality industry from the viewpoint of hospitality professionals. Future research could consider the perspectives of employees or other stakeholders.

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Araştırma ve Yayın Etiği Beyanı

Araştırmacı verilerin toplanmasında, analizinde ve raporlaştırılmasında her türlü etik ilke ve kurala özen gösterdiğini beyan eder.

Yazarların Makaleye Katkı Oranları

Makale tek yazarlı olarak hazırlanmıştır.

Çıkar Beyanı

Yazarın herhangi bir kişi ya da kuruluş ile çıkar çatışması yoktur. Ayrıca herhangi bir potansiyel çıkar çatışması bulunmamaktadır.