VÝZVY DIGITALIZÁCIE, PASPORTIZÁCIE A DIGITÁLNEHO RIADENIA CESTOVNÉHO RUCHU

Daniela Matušíková, Tünde Dzurov Vargová (eds.)

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Adriana Ferancová, Ľubica Šebová, Klára Chovanová

Abstrakt

Cieľom príspevku je zhodnotiť proces digitálnej transformácie v hotelierstve a identifikovať jej hlavné výzvy a príležitosti pre efektívne riadenie hotelov. Príspevok sa zameriava na skúmanie, ako digitálne technológie menia tradičné hotelové procesy, napomáhajú pri zvyšovaní kvality služieb a ovplyvňujú spokojnosť hostí. Empirická časť práce vychádza z kvalitatívneho prieskumu s manažérmi dvoch hotelov, ktoré implementovali rôzne digitálne nástroje. Získané výsledky ukazujú, že digitalizácia prispieva k vyššej efektívnosti a personalizácii služieb, no jej implementácia naráža na limity technologickej pripravenosti a školenia personálu. Manažéri zdôraznili potrebu kontinuálneho vzdelávania zamestnancov a posilnenia kybernetickej bezpečnosti. Digitalizácia hotelového prostredia nie je len technologickou, ale aj strategickou a kultúrnou zmenou v riadení hotelov.

Kľúčové slová: *Digitalizácia. Hotel. Manažment. Transformácia.*

Abstract

The aim of the paper is to evaluate the process of digital transformation in the hospitality industry and to identify its main challenges and opportunities for effective hotel management. The paper focuses on examining how digital technologies are reshaping traditional hotel processes, supporting the improvement of service quality, and influencing guest satisfaction. The empirical part of the study is based on a qualitative survey conducted with managers of two hotels that have implemented various digital tools. The findings show that digitalization contributes to higher operational efficiency and service personalization; however, its implementation is limited by the level of technological readiness and staff training. The managers emphasized the need for continuous employee education and the strengthening of cybersecurity. The digitalization of the hotel environment represents not only a technological but also a strategic and cultural transformation in hotel management.

Key words: *Digitalization. Hotel. Management. Transformation.*

Theoretical Framework of the Topic

Digitalization has become one of the key factors shaping competitiveness in the hotel industry. Technological progress, globalization, and growing guest expectations are forcing hotels to change traditional processes and adopt innovative digital solutions. The COVID-19 pandemic accelerated digitalization

processes and highlighted the need for contactless services and flexible data access. Therefore, digitalization is not just a technological change but also a strategic process affecting all levels of management.

According to Molina-Castillo (2023), the hotel industry is experiencing constant diversification and expansion, becoming one of the fastest and largest growing sectors in the world. He argues that innovation is recognized as essential for reshaping traditional business models and enhancing competitiveness. The partial or complete automation of various hotel and restaurant functions that is driven by digital systems and robotics has already begun to alter job roles within the sector. The adoption of advanced solutions, such as Artificial Intelligence (AI), is escalating. Recent discussions in the industry focus on the strategic challenge of implementing these advanced systems, specifically weighing their potential in reducing operating costs against their influence on the quality of services provided to guests (Alieva, Maximenko & Godina, 2023).

The continuous drive toward service digitalization and automation is establishing a new operational baseline across the hotel industry. Beyond the obvious trend of developing services provided through mobile devices for guests, digitization in the hotel sector also includes implementing advanced solutions for security and gathering information about all visitors. Using this information strategically, hotels gain better ability to customize and personalize services, for example for regular visitors, and draw conclusions about the behavior and preferences of individual customer segments (Voronova, Khareva a Khnykina, 2020).

The digital revolution has fundamentally redefined hotel operations and management, establishing digital technologies as critical drivers of competitive advantage and operational efficiency within the traditionally labor-intensive hospitality sector. Digital technologies such as self-service technologies, robots, blockchain, Big Data analytics, mobile applications, social media, and information systems can change how hotels manage their operations and value chains. Hotels can use these technologies to manage their services, ordering processes, demand, capacities and resources, relationships with customers and suppliers, thereby achieving better results in financial performance, competitiveness, service quality, resource utilization, flexibility, and innovation (Iranmanesh et al., 2022).

The integration of technology has emerged as a pivotal force in shaping the overall guest experience and redefining hotel operations. Advances in personalization, operational efficiency, communication, and innovative features driven by tools like AI, IoT, AR or VR, and data analytics, are no longer just about comfort – they are essential for creating memorable and hyper-personalized stays. These technological solutions enable hotels to meet the evolving demands of modern travellers, who prioritize safety, sustainability, and wellness. Furthermore, by facilitating responses to market shifts, such as the need for contactless services post-pandemic, technology grants hotels a significant competitive edge. However, hoteliers must maintain the understanding that technology should complement, not replace, the human element which is the true essence of hospitality. The future of hotel management hinges on successfully balancing this intersection between these two components. While the rapid pace of technological change demands continuous investment and adaptation, it concurrently offers unparalleled opportunities to streamline processes, enhance customer service, and achieve market differentiation. Moving forward, hotels must remain agile, adopting current technologies while proactively anticipating future trends, such as leveraging AI for predictive personalization, blockchain for security, and sustainable technology to address environmental concerns (Das, 2023).

The most critical contribution of AI to the hospitality sector is its power to liberate staff from monotonous chores. By delegating repetitive tasks like managing bookings, answering common questions, and handling simple room requests to AI-powered systems such as chatbots and virtual assistants, hotels can fundamentally reimagine their workforce's role. This strategic shift frees up human employees to dedicate their

energy to the intricate, personalized guest interactions where a warm, personal touch truly matters (Cain, Thomas & Alonso, 2019).

AI's value extends far beyond the lobby – it also transforms back-of-house operations, powering smarter inventory management, tailored marketing campaigns, and insightful strategic decision-making. When staff are relieved of tedious work, their job satisfaction and creativity also rise, allowing their energy to be channelled into creating genuinely innovative services and elevating the entire guest experience. Guests enjoy higher satisfaction, the brand's reputation flourishes, and profitability naturally follows (Birendra & Pagaldiviti, 2023).

From a strategic perspective, the primary challenges to digital transformation in hospitality are capital expenditure and human resource constraints. The high price tag of new digital technologies is a clear deterrent, particularly for smaller enterprises. However, this challenge is compounded by the necessity of a long-term commitment to training, which is often complex and lengthy, highlighting the organizational lag in adapting staff skills to the pace of technological change (Voronova, Khareva & Khnykina, 2020).

The digital divide presents a critical risk to the core values of hospitality. Not all guests are proficient with new digital systems, meaning some struggle to access services that are easily used by others. This creates a two-tiered system where technologically advanced customers receive superior, personalized service, while less digitally literate individuals experience difficulties. From a managerial standpoint, this service disparity not only damages guest satisfaction ratings but also undermines the hotel's commitment to inclusivity and its ability to effectively engage the entire market segment (Gajić et al., 2024).

The increasing reliance of the hospitality sector on technology is a double-edged sword. While it successfully drives greater efficiency, convenience, and guest satisfaction, it simultaneously elevates the industry's exposure to sophisticated cyber threats. To fully secure the advantages of digital innovation, hotel managers must strategically adopt comprehensive cybersecurity frameworks. These strategies are vital not only for safeguarding sensitive systems and protecting valuable guest data but also for maintaining continuous operational resilience in this technologically driven environment. Only by proactively addressing these vulnerabilities can the industry confidently minimize associated risks while maximizing its digital benefits (Khadka, 2025).

The opportunities unlocked by digitalization in the hospitality sector are extensive and strategic. Digital platforms enhance operational efficiency through automation and data analytics, enabling real-time decision-making and optimal resource utilization. For instance, the deployment of AI-driven solutions allows hotels to dynamically manage booking processes, deeply customize guest interactions, and accurately predict market trends, resulting in boosting both efficiency and customer satisfaction. Furthermore, the evolution of digital communication channels fosters improved interoperability across the entire service ecosystem, which not only enriches the overall customer experience but also provides businesses with valuable insights into consumer behavior. Strategically, the digital era grants hospitality businesses a significant opportunity to re-engineer their marketing efforts. By harnessing platforms such as social media, mobile applications, and online review systems, hotels can collect extensive consumer data and apply advanced analytics. Lastly, the emergence of hybrid tourism where digital and physical experiences converge has opened new ways for profound innovation, including virtual tours, remote customer service via chatbots and immersive environments like the metaverse. These innovative practices are particularly appealing to digitally native guests (Rolando et al., 2022).

The modern travel experience is now fully interdependent with technology, making digital interactions a mandatory feature of virtually every trip component, and rendering hotel operation almost impossible without it. The continuous influx of new technological tools into the hospitality sector is strategic, impacting everything

from internal management systems to the primary interfaces used with guests and prospective customers. This technological foundation is what strategically allows hotels to efficiently tailor guest experiences and reliably retain individual preferences (Marques J. & Marques R. P., 2023).

Aims and Methodology

The aim of this paper is to evaluate the process of digital transformation in the hotel industry and identify its main challenges and opportunities for effective hotel management. The scope and level of digital transformation in the hotel industry are assessed by examining the experiences of managers from two hotels that have implemented various forms of digital solutions. The intention is to contribute to the understanding of how digitalization changes the nature of hotel services, what managerial challenges it poses, and what opportunities it opens up for the further development of sustainable and smart tourism management.

The survey was carried out to gain an overview of the extent of digital technology use in hotels and its impact on management efficiency, quality of services, and guest satisfaction. Given the qualitative nature of the problem under investigation, the method of semi-structured interview was chosen, which allows for a more detailed understanding of the experiences and attitudes of hotel managers regarding the implementation of digital solutions.

The qualitative approach was deliberately chosen, as the goal of the research was not to quantify statistical indicators but to identify specific trends, barriers, and examples of good practice in the digitalization of hotel processes.

The research sample consisted of two hotels of different sizes and categories operating in the Slovak Republic. The first is a four-star hotel focused on business clientele, and the second is a three-star standard hotel oriented towards holiday stays and families with children. Both hotels were selected based on their willingness to participate in the survey and their demonstrable use of digital systems in operational management.

The interviews were conducted with senior hotel staff. The questions were designed to cover key areas of hotel process digitalization – from reservation management, check-in/check-out procedures, and guest communication, to the use of technology in housekeeping, artificial intelligence, and data protection. The list of questions contained eleven open-ended items, allowing the respondents to formulate answers freely and supplement them with their own experiences and insights.

The obtained data were processed using thematic analysis, which allows for the identification of recurring themes and patterns of behaviour.

The responses were categorized into the following thematic areas:

1. Technologies in Reservation Management and Communication,
2. Digitalization of Guest Services,
3. Automation and Internet of Things (IoT),
4. Utilization of Artificial Intelligence (AI),
5. Data Security and Management,
6. Impacts of Digitalization on Guest Satisfaction and Operational Efficiency.

The results of the qualitative analysis made it possible to identify specific benefits and challenges of hotel digitalization, as well as the factors influencing the successful implementation of technological innovations.

Particular emphasis was placed on managerial decision-making, technological readiness, and the need for employee training, which proved to be key determinants of effective digital management of hotel processes.

Results and Discussion

Digital transformation was examined using the example of selected hotels, which were Hotel Aquatermal*** in Dolná Strehová and Hotel Grand**** in Vígľaš. Table 1 provides the basic performance characteristics of the hotels surveyed.

Table 1: Basic Performance Characteristics of the Surveyed Hotels

Hotel	Rating	Rooms	Beds	Employees
Grand Vígľaš	****	55	110	45
Hotel Aquatermal	***	41	82	40

(Source: own processing)

The hotels differ in all aspects, including class, number of rooms, and beds. Although the difference is not substantial, based on the number of beds, we classify Hotel Grand Vígľaš as a medium-sized hotel and Hotel Aquatermal as a small hotel.

In the first surveyed hotel, Hotel Aquatermal in Dolná Strehová, we conducted an interview with the hotel director, Ing. Ivan Matina. In the first part of the interview, focused on technology, we found that the hotel provides guests with the option of online booking. The hotel utilizes the Hores system as its main Property Management System (PMS). Hores is a complex software tool specifically designed for hotel management needs, which also includes an online reservation system. Online accommodation booking is possible directly through the hotel's website. Besides selecting a room, it offers guests the option to specify amenities they want prepared upon arrival (e.g., alcohol, mineral water, or bathrobes). These amenities are categorized into "upon arrival in the room" and "in-room equipment". The online reservation system on the hotel's website does not offer the option to order supplementary services. These must be reserved directly on-site or in advance via phone and email, which the hotel uses as its primary guest communication channel. Guests can also use Facebook and Instagram for communication, where the hotel regularly posts updates and special offers. The online reservation system creates an account for the guest after purchase, allowing them to perform an online check-in after logging in; however, the system does not offer online check-out. Payments made via the hotel's website can be processed immediately using an online card or bank transfer. Regarding other technologies used in the hotel, the manager's responses were mostly negative. The hotel does not offer guests communication through a mobile application or other digital platform, apart from the mentioned email and social media. The hotel also does not use any technology in housekeeping or offer virtual or augmented reality experiences. Regarding smart room technology, the only feature mentioned is the use of a card for door unlocking and managing electricity in the rooms. The manager gave a positive response regarding the use of Artificial Intelligence (AI), which they employ for creating new marketing strategies. Specifically, they use AI tools such as Google Analytics and MailerLite to process information about potential guests (defined as users who visit the hotel's website). With the help of AI, they can determine which website users came from, which links interested them the most, and what they purchase. The processed information is subsequently used to refine their new marketing strategy. The hotel does not track feedback on technology usage and does not provide general training on technology to its employees, apart from standard training when new operational elements are introduced. The security and privacy of guest data when using technological systems is ensured by the software supplier. An additional measure for protecting guest data is the hotel's secured internet network. When asked about implementing new technologies, the manager stated that their immediate goal is the introduction of online check-out.

The second hotel examined is the 4-star Hotel Grand Vígľaš in the village of Vígľaš, located in Central Slovakia near the town of Zvolen. We conducted an interview with the hotel director, Ing. Tomáš Sokologorský, MBA. In the first part of the interview, focused on technology, we found that since 2022, the hotel has been using one of the most modern reservation systems Ellipse Cloud, an automated smart solution for hotels and service providers. This system allows guests to make online reservations and use services such as online reservation management, check-in, check-out, and direct communication with the reception. After purchasing a stay online via the hotel's website, a guest account is automatically created, providing access to the aforementioned options. Within their account, the guest can check ordered services, their timing, and review their restaurant bill. When booking accommodation online directly through the hotel's website, guests can also purchase supplementary services, which the hotel has divided into three categories: "additional gastronomy services," "additional wellness services – massages," and "additional hotel services". For supplementary services like massages, the system does not allow booking an appointment time immediately upon purchase, guests must select the time after purchase by communicating with the reception via email or phone. Accommodation booking via the website allows for immediate payment by online card or prepayment via bank transfer. Guests can also use the Ellipse Cloud system for communication with the reception, supplementing existing channels like email, Facebook, and Instagram. The hotel does not have special guest-facing technology, such as in-room tablets for requesting housekeeping services or communicating cleaning preferences. However, guests can use the online system to report preferences to the reception. Technology in housekeeping is used on the staff side through the Ellipse Cloud system. Housekeepers are equipped with smartphones connected to the reception's reservation system, allowing them to see which rooms have a check-in, check-out, and which require regular cleaning. The system functions in real-time, once the reception marks a check-out, housekeepers receive an alert that the room is empty and ready for cleaning and preparation for the next check-in. Similarly, when housekeepers mark a room as cleaned and ready, an alert is sent to the reception. If a technical issue (e.g., a lightbulb replacement) requires maintenance, housekeepers can submit a request through the system, and the reception notifies the maintenance team. There are no Internet of Things (IoT) devices in the rooms. The only smart room technology used is card-based door unlocking and electricity management. The hotel does not currently use AI but plans to implement it. This decision follows a negative experience with the real-person online chat, where the employee (usually the receptionist) often couldn't keep up with chat responses during busy periods. In the near future, the hotel plans to introduce an online conversational bot (chatbot) on its website to answer guest queries. Augmented Reality (AR) experiences are not yet available to guests, but the hotel offers a virtual tour of the rooms, common, and outdoor areas on its website. The virtual room tour is designed to cover all room types, helping customers make the right choice. Employee training on technology usage mostly takes place internally at the corporate level, where the manager or technology providers train hotel staff on its proper use. The implementation and correct use of technology have led to increased guest satisfaction and positive feedback, particularly regarding the Ellipse Cloud system's transparency and flexibility in reservation management. Data security and privacy are ensured by the software provider, and reception staff handling this data have undergone personal data protection training. Regarding the implementation of new technological innovations, the manager stressed that since the hotel is located in the oldest building in Slovakia converted into a hotel, introducing too many technological innovations could risk losing its authenticity and castle hotel atmosphere. The hotel's immediate future plans for new technological innovations include launching a new website that will allow guests not only to book accommodation but also to schedule supplementary services (e.g., massage

appointments), facilitate the booking of events and hotel spaces (previously only possible via phone or email), and integrate the chatbot service.

Figure 1 presents a Word Cloud visualization illustrating the relative frequency of key terms mentioned by representatives from both hotels during the interviews.

Figure 1 The Most Frequently Used Keywords in Interviews with Hotel Representatives
(Source: Own processing with https://wordcloud.online/cs, 2025)

The comparison of both hotels indicates that the level of digitalization is closely related to technological investments, client type, and the strategic vision of management. While Hotel Aquatermal primarily uses technology at the basic level of reservation management and marketing, Hotel Grand Vígľaš has implemented a comprehensive smart solution that digitalizes most key processes, including communication, housekeeping, and service management. While the former hotel is in a phase of partial digitalization, the latter can already be designated as a digitally mature hotel moving towards smart management. A common feature of both establishments is the utilization of cloud-based systems, an effort to simplify the customer experience, and an emphasis on data security. The most pronounced differences are in the area of internal process automation and the level of Artificial Intelligence (AI) utilization.

From a practical perspective, these findings confirm that the digital transformation of hotels is a multi-stage process requiring strategic planning, investment, employee training, and the adaptation of organizational culture.

Conclusion

The research results confirmed that the process of digital transformation in the hotel industry is proceeding unevenly and depends on several factors—specifically, hotel size, available financial resources, the level of technological infrastructure, and the management's approach to innovation.

While digitalization at Hotel Aquatermal in Dolná Strehová is predominantly focused on online reservations and marketing communication, Hotel Grand Vígľaš has implemented an advanced cloud-based system that connects multiple operational processes and allows for real-time activity automation.

These findings confirm that the digitalization of hotel processes is more than just a technological innovation—it is a comprehensive change in the method of management, communication, and service provision. Key benefits of digitalization include increased operational efficiency, faster and more accurate information transfer between departments, service personalization, and an enhanced customer experience. Technological solutions such as next-generation reservation systems, cloud-based PMS platforms, digital communication channels, and smart housekeeping applications enable hotels to optimize internal processes and respond more flexibly to guest needs.

On the other hand, major challenges include high initial investment, the need for regular software updates, personal data protection, and, most importantly, insufficient digital literacy among employees.

From a management perspective, it is therefore crucial that hotels approach digitalization strategically—as a long-term development process, not just a set of individual technical solutions. Managers should create internal digitalization plans that include goals, timelines, employee training, and the evaluation of the impact of implemented technologies. Simultaneously, it is important to focus on staff education—not only in the technical operation of systems but also in understanding their contribution to the customer experience and business efficiency.

In terms of further development, it can be recommended to expand the implementation of Artificial Intelligence (AI) and chatbots for automated communication with guests, integrate digital platforms for reservations, payments, and guest feedback into a unified system, systematically monitor guest satisfaction through online analytical tools, continue the digitalization of internal processes (housekeeping, maintenance, reporting), and pay attention to the ethical and security aspects of data processing.

Overall, it can be stated that digitalization in the hotel industry represents an essential step towards increasing competitiveness, efficiency, and sustainability. Hotels that can flexibly integrate modern technologies, secure competent personnel, and adapt to changing guest expectations will form the core of smart and data-driven tourism in the future.

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