Tilen Albreht Centrih<sup>1</sup> Tilen Nipič Žan Hodžič Tadeja Jere Jakulin

> Article info: Received 24.07.2024. Accepted 14.02.2025.

DOI - 10.24874/IJQR19.02-20



# HOSPITALITY 2.0: HOW THE IMPLEMENTATION OF TECHNOLOGY IN THE HOSPITALITY INDUSTRY AFFECTS THE PERCEPTION OF HOSPITALITY

Abstract: In today's world, technology is increasingly involved in the tourism industry, which is facing a transformation that fundamentally changes the concept of hospitality. The traditional understanding of hospitality, based on personal contact, warmth, and an individual approach, faces new challenges and opportunities brought about by technological innovation. This paper explores the impact of these technological changes on the perception of hospitality in the hospitality industry, considering both positive and negative effects. The research adopted qualitative methods, focusing on descriptive and analytical study of the theoretical literature and system dynamics model, which shows the interdependencies of hospitality's essential elements. The results contribute to a better understanding of how technology is changing hospitality in the hospitality industry and provide insights into how the sector can find the right balance between using technological innovation and preserving the human element at the heart of genuine hospitality.

*Keywords:* performance management, performance measurement, quality management, ISO 9001, system dynamics

## 1. Introduction

Technology is increasingly involved in the tourism industry, which is facing a transformation that fundamentally changes the concept of hospitality. The traditional understanding of hospitality, based on personal contact, warmth, and an individual approach, faces new challenges and opportunities brought about by technological innovation. This thesis explores the impact of these technological changes on the perception of hospitality in the hospitality industry, considering both positive and negative effects. The research adopted a qualitative research method, focusing on descriptive and analytical study of the

#### theoretical literature.

The research shows that the human element in hospitality is recognised as the essential ingredient for a positive consumer experience, especially for services labelled with the broad term' hospitality.' However, the question arises whether technology can sometimes replace the human element and, if so, how this affects guests' perception of hospitality.

This thesis aims to explore in detail how self-service technologies and robot-human interactions are changing the dynamics of hospitality in tourism. The research analyses the existing literature on hospitality and management technology and critically

<sup>&</sup>lt;sup>1</sup> Corresponding author: Tilen Albreht Centrih Email: <u>albreht.tilen@gmail.com</u>

assesses different perspectives, ranging from commercial and service to socio-cultural understandings of hospitality.

The first part sets out the research questions guiding the study and the methodological framework based on a thorough review and of the selected literature. analysis Furthermore, kev concepts such as hospitality, technology in service activities, especially in the hotel and catering industry, guests' perception of hospitality, and the impact of technology implementation on the perception of hospitality are defined.

The research contributes to a better understanding of how technology changes hospitality and provides insights into how the sector can find the right balance between technological innovation and preserving the human element at the heart of genuine hospitality.

# 2. 'Hospitableness' and the introduction of technology in the hospitality industry

Hospitality is a complex and multifaceted concept that faces challenges in academic research due to its indeterminacy. The literature offers different perspectives on hospitality, which are complementary and intertwined, ranging from essential food provision and shelter for travellers to the attitudes and behaviour of service workers. Mody, Suess, and Lehto (2018) distinguish between the terms' hospitality' and 'hospitableness,' the latter being a better equivalent to the Slovenian term' hospitality.' More attention is being paid to exploring the concept of hospitality by introducing new terms such as 'hospitableness' and 'experience of hospitality' (Pijls et al., 2017).

Munasinghe et al. (2022) argue for a triadic framework of hospitality. This approach emphasises the importance of the place where hospitality takes place and allows for a more holistic understanding of hospitality concepts in tourism settings. Space is a crucial element, as hospitality not only exists in the interactions between guests and hosts but is also highly dependent on the context in which these interactions occur. Another example is hospitality at the guest-host interface. This approach looks at hospitality through a socio-cultural lens, focusing on the interpersonal relationships between guests and hosts. Here, hospitality is developed through the different social and economic interactions between guests and hosts during the tourists' journey.

The third perspective looks at hospitality through an economic lens, focusing on encounters between customers and employees in business environments. It also focuses on the services hospitality establishments provide and how they influence perceptions of hospitality.

From this, we derive commercial hospitality. This aspect explores how standardisation and technological efficiency influence hospitality in commercial settings, as McDonaldisation theory describes. The focus is on losing the human touch due to efficiency efforts, leading to "inhospitable hospitality" (Munasinghe et al., 2022).

Each perspective provides a different insight into understanding hospitality, focusing on various aspects of hospitality behaviour, from economic efficiency to interpersonal relationships and the impact of space. All these perspectives must be considered when considering hospitality, as together, they form a more holistic picture of hospitality as a multidimensional and context-dependent phenomenon.

Authors (Mody et al., 2018) conclude that previous research does not consider the human component essential for hospitality production in the hospitality industry. The same authors cite various studies that have attempted to define hospitality using different models, dimensions, and scales. The scales generally measure the extent to which the hospitality behaviour of hosts is sincerely motivated by a desire to please and care for others and the extent to which hosts understand and respond to the individual needs of guests, which include the need for welcome, respect and a sense of being valued, with an emphasis on the authenticity and sincerity of the welcome and service (Mody et al., 2018).

To understand hospitality, it is necessary to understand what guests perceive as hospitable behaviour (Pijls et al., 2017). does hospitality mean to What all stakeholders, especially guests? The survey Pijls et al. (2017) focuses on the reception of hospitality by guests, not on the offer of hospitality by hosts. The term' experience of hospitality' is used to describe both the behaviour of service providers and the experience of the physical environment of the service and its facilities. This is distinct from the 'hospitality experience', which refers to the experience within hospitality organisations such as bars, restaurants or hotels.

Based on the research, the authors identified several experiential dimensions of hospitality: feeling welcome, relaxed and comfortable in a welcoming environment, empathy, helpfulness, recognition and autonomy. The elements of surprise, efficiency and fun are dimensions which, on examination, form closer can their dimension but are more likely to be added to any of the above (Pijls et al., 2017). A detailed overview of the dimensions and what they contain is presented in Figure 1.

Concepts such as hospitality and the hospitality experience are difficult to measure due to their intangibility and the influence of various factors. Nevertheless, researchers have developed instruments to measure these constructs, including the "EH - experience of hospitality scale." (Pijls et al., 2017, p. 132)

The final ranking, which the authors based on several surveys, is shown in Figure 2.

Experiential dimensions of hospitality (with corresponding attributes) found in two qualitative studies.

Welcome	At ease	Acknowledgement
Open	Safe	Contact
Inviting	Secure	Feeling important
Welcome	At home	Appreciation
Warm	At ease	Interest
Approachable	Comfortable	Respect
Courteous	Relaxed	Taken seriously
Friendly	Knowing what's coming	Taking time
Polite		
Empathy	Servitude	Autonomy
Understanding (general) Understanding needs Involvement Support Same wavelength	Helpful Available Relief of tasks & worries Effort to take care Sincere Treated like a king/queen	Being in control Having influence Having choice Independence Freedom
Entertainment	Efficiency	Surprise
Distraction	Efficient	Unexpected (positively)
Pleasure	Easy	Exceeding expectations
	-	

# **Figure 1.** Dimensions of Hospitality (Pijls et al., 2017)

Inviting	1. Organization X feels inviting.
	<ol><li>Organization X feels open.</li></ol>
	<ol><li>During my visit I experience freedom.</li></ol>
Care	<ol> <li>Organization X provides support to me.</li> </ol>
	<ol><li>Organization X is involved in me.</li></ol>
	<ol><li>I feel as I am treated like a king/queen.</li></ol>
	<ol><li>Organization X does its best to take care of me.</li></ol>
	5. Organization X relieves me of tasks or worries.
	6. Organization X is interested in me.
	7. I feel important at organization X.
Comfort	<ol> <li>I feel at ease at organization X.</li> </ol>
	2. I feel comfortable at organization X.
	3. I feel relaxed at organization X.
Overall Experience	1. Overall, I experience organization X as hospitable.
of Hospitality	2. The employees are hospitable to me.
	3. All areas in the building that I visited seem hospitable
	to me.
<b>Overall Satisfaction</b>	1. What is your overall satisfaction with organization X?
a	2. To what extent has the services of organization X met
	your expectations?
	3. How close are the services provided by organization X
	compared to ideal services?
Behavioral	1. If I could choose again, I would visit this organization
intention <sup>b</sup>	again.
	<ol><li>I would recommend organization X to others.</li></ol>

**Figure 2.** Hospitality Dimensions Scale (EH-Scale) (Pijls et al., 2017, p. 132)

# **2.1. Introducing Technology in the Hospitality Industry**

The introduction of technology into tourism represents a transformation that has profoundly changed the sector and the tourist experience in recent years. The development spread of information and and communication technologies (ICTs) have enabled new ways of interaction between tourists and service providers and have changed traditional approaches to hospitality. At the forefront are self-service technologies (SSTs), which allow tourists to independently access services such as checking in and out of hotels, ordering food and beverages, and obtaining information without the direct involvement of staff (Shiwen et al., 2022).

When introducing technology into services, SSTs are vital to interacting with guests and the service provider. These systems include mobile applications and various terminal devices that need to be integrated into all phases of the service - pre-purchase, during, and post-purchase - to provide guests with a seamless digital service experience (Kansakar et al., 2019).

Various authors highlight the importance of digital ecosystems and SSTs in tourism to help provide quality experiences for people with physical and mental disabilities. Tourism is trending towards increasing the use of technology to make life easier, promote equality, support social inclusion, and improve quality of life. The research contributes to this field and highlights technology adoption as an enabler of accessible tourism (Gutierriz et al., 2023).

In smart tourism, technology is at the heart of information systems that provide tourists and service providers with crucial information to improve decision-making and mobility and enhance the tourism experience (Gretzel et al., 2015).

The Technology Acceptance Model strongly influences the perception of hospitality at the introduction of technology, where the concepts of perceived usefulness and perceived ease of use are essential. As such, for technology solutions to contribute to higher levels of perceived hospitality, it is a prerequisite that they are sophisticated to the extent that they do not cause technological distress, discomfort, or resistance. Even in this context, technology must play a more complementary role, facilitating otherwise mundane processes. The person at the helm of hospitality must still be the one who can use technology to identify guests' real needs and habits, but it must still be primarily a human being who realises them.

Mobile technologies, such as tablets and smartphones, play a vital role in integrating

information and communication technologies (ICTs), enabling an interactive dialogue between consumers and service providers. (Law et al., 2014). Extensive research has been conducted to understand better how technology is changing tourism practices, the service infrastructure, the relationships underpinning these, and how these changes influence tourists' preferences and behaviours (van Nuenen & Scarles, 2021).

Bringing technology into tourism brings efficiency gains and cost reductions and improves guest satisfaction and engagement. With mobile platforms such as smartphones and tablets, tourists now expect to be able to access relevant information and services at every step of their journey. (Law et al., 2014); this has spurred the development of personalised services based on data about individual guests' preferences and behaviours, allowing service providers to tailor their offerings and improve the quality of hospitality (Carlisle et al., 2023). At the same time, the algorithmic personalisation observed on different platforms is a phenomenon with a double effect. On the one hand, it is based on valuing individuality in designing personal experiences. On the other hand, this personalisation takes place within framework of shared and а standardised experiences, products, and services, where individuals are broken down into predictable characteristics, allowing for 'Big Data' (van Nuenen & Scarles, 2021).

addition, technology enables the In development of innovative tourism destinations that promise richer and more personalised experiences. tourist Technologies such as augmented reality (AR) and artificial intelligence (AI) are opening up new possibilities for exploring destinations interactively, improving navigation, and accessing local information innovatively (Carlisle et al., 2023).

Despite the many benefits of introducing technology into tourism, there are also challenges related to privacy, data security, and the need to preserve the human touch in hospitality. Understanding how technology influences perceptions of hospitality and how technology solutions can be integrated to complement the traditional values of hospitality and personal contact is critical (Sigala, 2018).

The paradox between personalisation and privacy is a critical challenge in services based on data analysis. While the development of intelligent technologies and the potential for personalisation promises a richer tourism experience, it also raises concerns about privacy and security. Legal regimes such as the GDPR and data breach cases highlight the risks associated with personalisation, which requires processing personal data (Volchek et al., 2021).

TVs in hotel rooms, now standard, are designed to enhance the guest experience. However, ΤV problems or limited entertainment content can lead to guest complaints. In addition, the extensive connectivity of in-room technological devices may increase guest comfort and raise concerns about security and privacy, which may lead to dissatisfaction. It is, therefore, essential to understand the roles of hospitality technology in the context of guest satisfaction and dissatisfaction and to explore how different technologies impact the guest experience (Park et al., 2022).

Some tourists are aware of the negative aspects of digital connectivity while travelling and are looking for ways to disconnect digitally. This includes avoiding online connectivity due to concerns about online surveillance and managing digital habits within the family, such as restricting children from using devices. Also, some tourists prefer to stay offline abroad due to privacy and information security concerns. (Li et al., 2018), which raises the question of how to strike the right balance between technological innovation and maintaining the genuine human touch that remains the key to true hospitality. Research and practice in the coming years will be vital in developing

guidelines that allow a harmonious coexistence between technological progress and the human dimension in tourism.

## 2.2. The Role of Self-service Technologies and the Interaction Between Robots and Humans in the Hospitality Industry

Over the last 20 years, self-service technologies (SSTs) and human-robot interaction have become important in tourism, significantly impacting hospitality and guest experiences. SSTs allow guests to participate independently in services without direct staff involvement, including checkin/check-out. reservations. and kiosk ordering. (Shiwen et al., 2022). These technologies optimise business processes within the service sector and improve guest satisfaction by satisfying their needs and emotions, not their social connections (Fung So & Li, 2023).

However, it is essential to bear in mind that while many guests prefer to use SSTs to get more out of the service, there are also challenges associated with their implementation. These include the hardships associated with using technology and the willingness to use technology according to the TAM ('Technology Acceptance Model') as important factors influencing the adoption of SSTs (Shiwen et al., 2022).

The Technology Acceptance Model (TAM) is critical in predicting consumer acceptance of mobile technologies, as it includes variables that describe their intention and actual use of the technology. Key variables include perceived usefulness, perceived ease of use, and attitudes towards the technology. The model is based on the belief that technology will improve work performance and that the system will be easy to use without significant effort (Li et al., 2024).

In addition, research shows that the speed and error resolution rate of self-service kiosks significantly impact perceptions of service quality and guest satisfaction. The quicker the error is resolved, or the quicker the staff assists the guest in resolving the technological snag, the sooner the guest will perceive the service as good quality (QianTing et al., 2021). There are relations within the individual, organisation, and social environment and between these areas. Processes, products/services occur in all of them and relate to different concepts and quality factors. (Arsovski, 2023) Suppose we conclude that service quality is also related to the perception of hospitality. In that case, we can conclude that the human element contributes to a higher level of hospitality or perception.

In the context of hotels, it has been found that perceptions of the usefulness of SSTs and the need to interact with employees vary according to individuals' habits and service levels (e.g., luxury vs. low-cost service). Therefore, it is necessary to investigate the effects of SSTs on hospitality in different settings, among people with different travel habits, to understand how these technologies improve or worsen the perception of hospitality. (Shiwen et al., 2022).

# 3. Methodology

This paper addresses the question of to what extent technology can replace humans in whether hospitality or implementing technology in hospitality and tourism is changing guests' perceptions of hospitality. This question opens various research possibilities for a combined research approach. This research used a qualitative approach, focusing on a descriptive and analytical exploration of the theoretical literature. Moreover, to better understand a causal loop system dynamics diagram (CLD model). The research aims to understand and interpret how technology implementation in the hospitality industry affects the perception of hospitality.

Relevant academic articles, books, case studies, and reports on hospitality and technology in service industries were reviewed for the literature selection. The selection criteria were relevance to the topic, author credibility, and methodological robustness. First, the literature was reviewed and summarised on the concepts of hospitality, technology in hospitality, and the perception of hospitality.

Critical analysis: Evaluating the selected literature's arguments, methods, and conclusions to identify patterns and new insights.

Synthesis and interpretation: Integrating findings from different sources to develop a CLD model for understanding technology's interconnectedness and impact on hospitality.

Methodological limitations: This is a limited qualitative study with the potential for biased source selection and interpretation of data. A combined qualitative and quantitative study would be necessary to draw meaningful conclusions, as hospitality is a complex phenomenon influenced by many factors. The implementation of technology as such is also a broad spectrum, so the thesis is primarily concerned with self-service technologies, which potentially cut most deeply into the hospitality context.

Using this approach, the research will contribute to understanding how technological innovations are changing traditional hospitality concepts and how the tourism industry can find the right balance between technological improvements and preserving the human touch.

# 4. Linking the Concepts of Technology and 'Hospitableness' and exploring the impact of technology implementation on the perception of hospitableness

The impact of technology on hospitality is complex and multifaceted, ranging from changes in operational efficiency to fundamental rethinking about the nature of hospitality. Technology in tourism, including self-service technologies and artificial intelligence, is transforming traditional hospitality practices. With the increasing integration of technological solutions such as digital platforms and smart devices, guest expectations and how guests and hosts interact are also changing. (Sigala, 2018).

On the one hand, technology allows for greater personalisation of services and increases the efficiency of operations, which can improve the hospitality experience. For example, an automated check-in system can reduce queues and allow guests to access their rooms more quickly, improving their satisfaction. (Buhalis & Amaranggana, 2015).

On the other hand, there is a danger that the overuse of technology reduces human contact, which is a crucial element of hospitality. Traditionally, hospitality has involved personal interaction and warmth, which is difficult to replace with technological solutions (Munasinghe et al., 2022).

To better understand this impact, further research is needed to explore how guests respond to technology in different hospitality contexts and how technology influences their perceptions of services. It is essential to explore in which cases technology complements the human element of hospitality and in which cases it may even harm the perception of hospitality (Sigala, 2018; Fung So & Li, 2023).

Exploring the link between technology and hospitality in tourism reveals a complex dynamic where technology offers both opportunities to enhance the guest experience and challenges to maintain the heart of hospitality. The key is to strike a balance that allows the benefits of technology to be harnessed while preserving human contact and warmth at the heart of hospitality.

## 4.1. The Role of Self-service Technologies and the Interaction Between Robots and Humans in the Hospitality Industry

Research shows that measuring hospitality a concept traditionally linked to human interactions and personal relationships - in the context of technological integration is a challenge (Pijls et al., 2017). Different models and scales have been developed to measure different dimensions of hospitality, such as warmth, personal contact, and empathy. However, introducing technologies such as self-service technologies and robothuman interactions has led to questions about whether these technologies can replace the core human elements of hospitality (Mody et al., 2018).

Discussions on whether technology can replace the human elements of hospitality have focused on various aspects such as efficiency, personalisation, and stress reduction for guests. These technologies can improve some of the operational aspects of hospitality and increase guest satisfaction through faster and more personalised access to services. However, there is a consensus that technology alone cannot fully replace the human touch, empathy, and warm interpersonal relationships that are key to genuine hospitality (Mody et al., 2018).

If we look more closely at the dimensions of hospitality listed by (Pijls et al., 2017), we can see which dimensions can and cannot be replaced by technology (Table 1).

The general conclusion is that technological solutions and technology implementation in service processes can replace or improve human contribution in some parts and elements. More importantly and crucially, however, some dimensions of hospitality cannot be replaced by technology. Let us look at hospitality as a shared construct of several dimensions.

The hospitality dimension	Can technology replace this dimension?	
A sense of 'Welcome'	The perception of these elements depends on tourists' travel and	
encompasses the elements of	general habits, technological literacy, and willingness to use	
openness, "Invitability," welcome,	technology. In general, online check-in and online concierge could	
warmth, accessibility, helpfulness,	at least partially replace the human factor in this dimension, but by	
friendliness, and politeness.	no means completely.	
Feeling at ease - covers the	The perception of these elements also depends on tourists' travel	
elements of safety, feeling safe,	habits and technological literacy. Some people find technology	
feeling at home, feeling relaxed,	relaxing and secure, while others find it frustrating and anxiety-	
and knowing what comes next.	provoking. It is also difficult to imagine that SSTs produce	
	feelings of familiarity among guests. At the same time, it is	
	probably a better predictor of the "future" or better informed about	
	what is to come, provided it is programmed correctly and	
	efficiently.	
Acknowledgement includes	Technological solutions cannot replace this dimension, regardless	
contact, feeling important and	of guests' travel habits, personal circumstances, and technological	
valued, genuine interest, respect,	literacy. Fortunately, we do not yet live in an age where robots or	
and seriousness, and giving guests	apps can connect personally and instil feelings of importance,	
enough time.	interest, and respect.	
Empathy - encompasses the	Given the ability of language models (which invariably state that	
elements of general understanding,	they lack empathy) to mimic the most common human	
understanding needs, inclusion.	terminology, too many guests might take the AI's responses as	
support, and feeling that someone	empathetic and, given the potential lack of human contact, feel	
is on the same wavelength.	genuinely heard by the language models. However, this connection	
	adds fuel to the fire of the new technologies' problem rather than a	
	solution. The essence of hospitality and accessibility is also the	
	involvement of all stakeholders in the service processes. Therefore,	
	avoiding situations where an individual would feel more	
	empathetically received by an AI than a human is necessary.	
Helpfulness, or rather, willingness	These elements are divided into those technology can replace and	
to help ('Servitude') - includes the	those it cannot. Technology can certainly help with basic and more	
elements of helping, availability.	complex processes, and it can also help with the availability and	
relief of tasks and worries effort to	ease of tasks and concerns. However, it cannot make you feel that	
take care, sincerity, and feeling like	someone cares, that you are sincere, and that you are treated like a	
a queen.	queen.	
Autonomy includes feeling in	This dimension again depends on tourists' travel habits and the	
control having influence and	technological literacy of their willingness to use technology	
decision-making power and	technological netacy of their winnighess to use technology.	
independence and freedom		
Entertainment - includes elements	The dimension where technology can best replace the human	
of distraction pleasure and fun	element as more and more individuals are using technology	
of distraction, pleasure, and fun.	solutions as a source of entertainment, even on their holidays	
	means that technology entertainment solutions will positively	
	impact quests' perception of hospitality	
Efficiency covers the actual	Tachnology can also generally address this dimension better then	
afficiency of the service, such as	any Master of Hospitality, as the principles of good programming	
simplicity and flyanay ("Elyant")	deal with these concents, among others	
or rother fluidity	dear with these concepts, among others.	
Summise includes elements of the	In this dimension, the question is again open and dependsi	
surprise - includes elements of the	in this dimension, the question is again open and depends mainly	
avpositive unexpected, exceeding	on murviduals willingness to use technology. Those closer to	
expectations, and surprise.	using technology daily will likely prefer the technological element	
	of surprise. In contrast, others will prefer the numan element.	

Table 1. Dimensions of hospitableness and technology replacement

We can conclude that technological solutions, however advanced, cannot replace, at least for once, the human factor, which still plays a vital role in the perception of hospitality. Below, we present a model in a frame of system dynamics, the so-called causal loop diagram, which represents the results we received with methods of description and analysis. System dynamics models are essentially simple and can describe the activity of basic mutual influences among variables and as tools for strategic planning (Jere Jakulin et al., 2020).



**Figure 3.** CLD model of dependencies among elements of human contact hospitality and technology in hospitality

The causal-loop model shown in Figure 3 is interpreted as follows: human contact increases (+) empathy, empathy has an increasing effect on guest loyalty, (+) becoming a regular guest, regular guests affect increasing organised entertainment (+), entertainment sensory elements (+), sensory elements positively (+) influence human contact. We described the main reinforcement circle where positive loops, denoted by + signs, prevail. We have another reinforcement circle, which presents the increasing dynamics between the researched Technology increases elements. guest satisfaction (+), and guest satisfaction increases the entertainment of the hotel (+), and the entertainment increases the quest for technology and innovation (+). However, since living systems strive for balance or homeostasis (Miller, 1978), nature as a "supersystem "with all its subsystems, such as people, fauna, and flora, strive for balance as "soft systems" (people with their characters, moods, emotions, approaches, and attitudes), we must introduce a negative feedback loop (-), representing the balancing or equilibrium step. Technology, such as IT and AI, has a negative (-) impact on empathy. A balancing circle creates the elements of human contact and technology: the more technology (+), the less human contact there is (-).

While exploring the impact of technology on hospitality, various studies have been analysed to investigate how technological innovations are changing traditional concepts and practices in hospitality. The key findings described in the theory of scientific research are also formulated in the cause-loop model described above. summarised and compared with theoretical concepts as follows:

## Key findings:

Technological innovations improve operational efficiency and provide excellent service personalisation, improving guest experience and satisfaction (Pijls et al., 2017).

Artificial intelligence and SST offer new opportunities for 'empathetic' guest care. However, the question is whether these technologies can truly replace the human skills such as empathy and personal touch that are key to hospitality. (Sigala, 2018). The primary findings suggest that they do not. Technology can sometimes increase perceived hospitality, especially for guests who value efficiency and independence, such as business travellers (Mody et al., 2018).

## **Comparison with theoretical concepts:**

Traditionally, theoretical hospitality concepts emphasise human interaction and personal contact as central elements. Technology brings new dimensions of hospitality that can complement but not replace these traditional elements.

The "McDonaldisation" theory of hospitality points to the risks of standardisation and loss of personal touch due to technology, which can lead to "inhospitable hospitality" (Munasinghe et al., 2022). Key findings suggest caution must be exercised when integrating technology to maintain hospitality's cordiality.

#### A starting point for further research:

Further research is needed to explore how guests from different demographic groups and cultural backgrounds perceive technology in the context of hospitality. Research is needed on how technology affects hospitality staff and how technology and human elements can best work together to provide an optimal guest experience. Further research should explore how different guests perceive technology in hospitality and how this impacts their overall experience. It is also essential to explore how technology and human elements can work together to provide an optimal hospitality experience. In addition, further research should focus on understanding how technology can complement, rather than replace, the human element in hospitality and how the tourism industry can best use technology to enhance hospitality without sacrificing its heart.

### Practical implications:

The tourism sector needs to develop strategies to integrate technology that preserves and complements the human element of hospitality. Training staff in using technology and developing soft skills is critical to ensuring that technology enhances, rather than detracts from, the quality of hospitality. This synthesis highlights the importance of a balanced approach to technology integrating in hospitality, considering both service enhancement and preserving the core values of hospitality. The tourism sector must develop strategies to integrate technology into hospitality services without sacrificing the human touch. By focusing on these key findings and

suggestions, the tourism sector can better understand the impact of technology on hospitality and how best to use technology to enhance the guest experience without losing the human essence of hospitality.

The impact of technology on hospitality raises many questions and dilemmas in the tourism industry. Technology can have many positive effects that enhance the hospitality experience, but it can also have potential adverse effects that can reduce guests' perception of hospitality.

# The positive effects of technology on hospitality:

Improving efficiency and personalisation: Technology enables faster and more personalised service, positively impacting guest satisfaction (Buhalis & Amaranggana, 2015).

Increased accessibility and information: Digital platforms and mobile apps make it easier for guests to access information and services, increasing their satisfaction and hospitality experience.

New ways to interact: Technology enables innovative ways for guests and hosts to interact, such as virtual assistants and chatbots, which can improve communication and service.

# The adverse effects of technology on hospitality:

Reduction of personal contact: Excessive use of technology can reduce the direct human interactions that are a vital part of hospitality, thus reducing the feeling of welcome and warmth (Munasinghe et al., 2022).

Technology overload: Over-reliance on technology can overwhelm and stress guests, harming their hospitality experience.

Security and privacy: With the increased use of technology, concerns about data security and privacy of guests arise, which may reduce their trust in hospitality providers.

## 4. Conclusions

Research on the impact of technology on hospitality in the tourism industry reveals a complex and multi-layered dynamic. With modern innovations such as self-service technologies, artificial intelligence, and digital platforms, hospitality is being transformed to offer new opportunities to improve services and guest experiences. However, this transformation also brings challenges related to the human element of hospitality, which remains crucial to delivering a genuine and warm experience.

The positive impacts of technology include efficiency improvements, personalisation of services, and innovations that can increase guest satisfaction. Technology allows guests more flexibility and control over their experience while enabling service providers to understand better and meet guests' needs. On the other hand, excessive or inappropriate use of technology can be harmful as it can reduce personal contact and warmth, which are at the heart of hospitality. Data security and privacy concerns must be addressed when introducing new technologies into hospitality.

Finding a balance between harnessing technological innovation to improve services and preserving the human element, which is hospitality's distinctive advantage, is crucial for future technological development in hospitality and can be achieved with a systems approach to addressing the challenges. The CLD model built for the research illustrates the approach. Further research should explore how technology and human elements work together to create a rich and satisfying hospitality experience.

This research contributes to a better understanding of the dynamic relationship between technology and hospitality. It offers insights into how the tourism industry can integrate technology without losing its essence - warmth, personal touch, and authenticity in guest-host relationships.

### **References:**

Arsovski, S. (2023). Kvadratura Kvaliteta. Fakultet inženjerskih nauka.

- Buhalis, D., & Amaranggana, A. (2015). Smart Tourism Destinations Enhancing Tourism Experience Through Personalisation of Services. *Enter*, pp. 377-388. doi:10.1007/978-3-319-14343-9\_28
- Carlisle, S., Ivanov, S., & Dijkmans, C. (Maj 2023). The digital skills divide evidence from the European tourism industry. *Journal of Tourism Futures*, 2, 240-266. doi:10.1108/JTF-07-2020-0114
- Fung So, K., & Li, X. (April 2023). Service Innovation and Emerging Technologies in Tourism and Hospitality. *Cornell Hospitality Quarterly*, 2, 140-142. https://doi.org/10.1177/19389655231166819
- Gretzel, U., Sigala, M., Xiang, Z., & Koo, C. (Avgust, 2015). Smart tourism: foundations and developments. *Electronic Marktes*, 179-188. doi: 10.1007/s12525-015-0196-8
- Gutierriz, I., J Ferreira, J., & O Fernandes, P. (Avgust 2023). Digital transformation and the new combinations in tourism: A systematic literature review. *Tourism and Hospitality Research*, 1-20. doi:10.1177/14673584231198414
- Jere Jakulin, T., Rozman, Č., Pažek, K., Borštnar, M. K., Škraba, A., Kofjač, D., & Jakulin, V. (2020). Systems Approach Concepts in Contemporary Society: Systems Thinking, Modelling and Simulation in Science and Practice. Verlag Dr. Kovač.

- Kansakar, P., Munir, A., & Shabani, N. (Maj 2019). Technology in the Hospitality Industry: Prospects and Challenges. *IEEE Consumer Electronics Magazine*, *3*, 60-65. doi:10.1109/MCE.2019.2892245
- Law, R., Buhalis, D., & Cobanoglu, C. (Julin 2014). Progress on information and communication technologies in hospitality and tourism. *European Journal of Marketing*, 5, 727-750. http://dx.doi.org/10.1108/IJCHM-08-2013-0367
- Li, F., Zhu, D., Lin, M. T., & Kim, P. B. (2024). The technology acceptance model and hospitality and tourism consumers' intention to use mobile technologies: meta-analysis and structural equation modeling. *Cornell Hospitality Quarterly*, 65(4), 461-477.:https://doi.org/10.1177/19389655241226558
- Li, J., Pearce, P. L., & Low, D. (2018). Media representation of digital-free tourism: A critical discourse analysis. *Tourism Management*, 69, 317-329. https://doi.org/10.1016/j.tourman.2018.06.027
- Miller, J. G. (1978). Living Systems. McGraw-Hill Companies.
- Mody, M., Suess, C., & Lehto, X. (2019). Going back to its roots: can hospitableness provide hotels competitive advantage over the sharing economy?. *International Journal of Hospitality Management*, 76, 286-298. https://doi.org/10.1016/j.ijhm.2018.05.017
- Munasinghe, S., Hemmington, N., Schänzel, H., & Poulston, J. (2022). Hospitality beyond the commercial domain: A triadic conceptualisation of hospitality in tourism from a host-guest encounter perspective. *International Journal of Hospitality Management*, 107, 103316. https://doi.org/10.1016/j.ijhm.2022.103316
- Park, H., Lee, M., DeFranco, A., & Back, K.-J. (November, 2022). Is Hotel Technology a Double-edged Sword on Customer Experience? A Mixed-method Approach Using Big Data. *Journal of Hospitality & Tourism Research*, 1–14. https://doi.org/10.1177/10963480221132758
- PiPijls, R., Groen, B. H., Galetzka, M., & Pruyn, A. T. (2017). Measuring the experience of hospitality: Scale development and validation. *International journal of hospitality* management, 67, 125-133. http://dx.doi.org/10.1016/j.ijhm.2017.07.008
- QianTing, L., Chung, H. C., & Chung, N. (2021). A study on the factors affect the technology satisfaction on AI based self-service technology service failure in hotel. In *Information and Communication Technologies in Tourism 2021: Proceedings of the ENTER 2021 eTourism Conference, January 19–22, 2021* (pp. 123-127). Springer International Publishing. https://doi.org/10.1007/978-3-030-65785-7\_10
- Shiwen, L., Kwon, J., & Ahn, J. (2022). Self-service technology in the hospitality and tourism settings: A critical review of the literature. *Journal of Hospitality & Tourism Research*, 46(6), 1220-1236.
- Sigala, M. (2018). New technologies in tourism: From multi-disciplinary to anti-disciplinary advances and trajectories. *Tourism management perspectives*, 25, 151-155. doi:https://doi.org/10.1016/j.tmp.2017.12.003
- Van Nuenen, T., & Scarles, C. (2021). Advancements in technology and digital media in tourism. *Tourist studies*, 21(1), 119-132. doi:https://doi.org/10.1177/1468797621990410
- Volchek, K., Yu, J., Neuhofer, B., Egger, R., & Rainoldi, M. (2021). Co-creating personalised experiences in the context of the personalisation-privacy paradox. In *Information and Communication Technologies in Tourism 2021: Proceedings of the ENTER 2021 eTourism Conference, January 19–22, 2021* (pp. 95-108). Springer International Publishing. https://doi.org/10.1007/978-3-030-65785-7\_8

#### Tilen Albreht Centrih

The University of Primorska, Faculty of Tourism Studies – TURISTICA, Portorož, Slovenia <u>albreht.tilen@gmail.com</u> ORCID 0009-0002-5796-8621

#### Tadeja Jere Jakulin

University of Primorska, Faculty of Tourism Studies – TURISTICA, Portorož, Slovenia <u>tadeja.jerejakulin@upr.si</u> ORCID 0000-0003-1849-8444

## Tilen Nipič

The University of Primorska, Faculty of Tourism Studies – TURISTICA, Portorož, Slovenia <u>tilen.blaznik1@gmail.com</u> ORCID 0009-0008-7434-7409

### Žan Hodžič

The University of Primorska, Faculty of Tourism Studies – TURISTICA, Portorož, Slovenia <u>zan.hodzic12@gmail.com</u> ORCID 0009-0005-4043-9047 Albreht Centih et al., Hospitality 2.0: how the implementation of technology in the hospitality industry affects the perception of hospitality