A STUDY ON THE PERCEPTION OF HOTEL EMPLOYEES TOWARDS SERVICE ROBOTS IN DEVELOPING COUNTRIES, A CASE OF VIETNAM

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Abstract

Purpose – This study aims to find out how knowledgeable Vietnamese hotel employees are about service robots.
Methodology/Design/Approach – Data analysis and interpretation techniques included both quantitative and qualitative approaches. This examination was carried out using a phenomenological approach. Thematic analysis was used to examine the data.An in-depth interviewing technique was used with 43 hotel employees who worked in the department of Front Office and Food & Beverage.
Findings – Half of the participants had heard of "service robots" and could define them using their attributes and functions. Hotel staff discussed the potential advantages and disadvantages of applying service robots for the hotel, customers, and themselves. Lastly, the study demonstrates how ready Vietnamese hotel employees are to collaborate with service robots. Specifically, Gen Z personnel are more prepared than Gen Y personnel.
Originality of the research – This research contributes novel insights into the evolving dynamics of the hospitality industry in Vietnam, particularly regarding the adoption of service robots. This topic has garnered limited attention in the context of developing countries.
Keywords hotel, hotel employees, service robot, readiness

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INTRODUCTION

Service robots powered by artificial intelligence (AI) are becoming more prevalent and are anticipated to replace or supplement human service providers in a variety of industries (McLeay et al., 2021; Xiao & Kumar, 2021; Yoganathan et al., 2021; Neapolitan & Jiang, 2013). Many of these devices are designed to be supportive and comforting, helping people by granting them easy access to information and services, supporting them in their occupations, or doing particular duties at home (Rodriguez-Lizundia et al., 2015). By 2055, experts predict that almost half of today's jobs will be automated (McKinsey Global Institute, 2017).

The hotel sector is a significant sector that is currently adopting service robots in operation and management (Rodriguez et al., 2015). For the concierge, guest registration (check-in/check-out), room service, bartending, chatbots, and virtual voice assistance, hotels are employing AI to speed up processes and complete jobs that were previously handled by frontline service staff (Kim & Qu, 2014; Ivanov & Webster, 2017; Kuo et al., 2017; Tung & Law, 2017). For example, in Japan, several hotels have replaced many frontline service staff with interactive robots (Osawa et al., 2017). Hotel Henn-Na in Japan is the first hotel to employ human-like robots as front office agents (Alexis, 2017). It is run almost entirely with robots, which function as receptionists, luggage carriers, and room service personnel (Rajesh, 2015). In the United States, Aloft Hotels began evaluating a robotic delivery robot created by Savioke in 2014 (Markoff, 2014). In order to deliver the requested things to the customer's doorstep, this robot can move throughout the hotel, operate the elevator, and dial the guest room (Tung & Au, 2018). Hilton Hotels introduced "Connie," a robotic concierge with artificial intelligence, in 2016 (Hilton, 2016). Additionally, in a similar move, other brands such as Residence Inn by Marriott, Aloft Hotels, and Holiday Inn Express also use robots, "Relay" and "Wally," to deliver room service (Crook, 2014; Silva & DeSocio, 2016). Wynn Hotel in Las Vegas announced in December 2016 that it would introduce Amazon's Echo voice-controlled speaker in all its rooms, equipped with the Alexa digital assistant (Lodging Magazine, 2016). In Las Vegas, the Mandarin Oriental Hotel has introduced Pepper as their newest humanoid staff member. Pepper resides in the lobby, where she welcomes guests and helps them to get directions (Walsh, 2018). AI and robotics have also been widely embraced across hotel departments, including revenue management, sales and marketing, catering, and facility management (Ivanov & Webster, 2017).

However, none of the studies so far addressed the impact of service robots on employees in Vietnam's hospitality sector. Vietnam was named Asia's top travel destination in the World Travel Awards 2018 and the world's third-fastest-growing

tourism destination overall by the United Nations World Tourism Organization (UNWTO). Vietnam has grown in local and foreign tourism during the past ten years. Before the COVID-19 pandemic, Vietnam's tourism peaked, and hotel service became essential to the national economy. The World Travel and Tourism Council (WTTC) claims that Vietnam has ranked "10th out of 185 countries with 9.8 percent of the total contribution of travel and tourism to GDP" (Vietnam Insider, 2019). In 2019, out of 30,000 tourist accommodation establishments, 178 were 5-star hotels, and 306 were 4-star hotels (Vietnam National Administration of Tourism, 2019). The number of tourist facilities increased from 69,000 rooms in 2001 to 490,000 in 2019. Accordingly, the labor of tourist accommodation establishments gradually increases, both in quantity and quality. The total number of people working in the accommodation sector in 2019 was 502,759, of which 12.57% were in the front office, 18.34% in restaurants, 31.96% in housekeeping, and 37.13% in other departments (Huong et al., 2022). Applying robots to customer service processes in the Vietnamese hotel industry is agrowing need in the future. Therefore, determining hotel employees' perspectives still plays an essential role in human resources management in Vietnam.

This research aims to determine the perception of hotel employees towards service robots. It mainly focuses on their thoughts about the benefits and drawbacks that service robots will bring to the customers, their hotels, and employees while working with the robot. This study also pointed out the employees' readiness level for working with robots and the differences in readiness between Gen Y and Gen Z employees. Since academic research on the impact of service robots in the tourism industry is limited, and there is no study dedicated to the topic in the context of the hospitality industry in Vietnam, we expect this study to make an essential contribution to the literature by filling this gap.

1. LITERATURE REVIEW

1.1. Definition of service robots

The term "robot" originated from the Czech word "robota" and means forced labor and "has evolved in meaning from dumb machines that perform menial, repetitive tasks to the highly intelligent anthropomorphic robots of popular culture" (Lanfranco et al., 2004). A service robot is defined as "system-based autonomous and adaptable interfaces that interact, communicate, and deliver service to an organization's customers." (Wirtz et al., 2018). According to the International Federation of Robotics (IFR, 2016), a service robot is "a robot that performs beneficial tasks for humans or equipment, excluding industrial automation application." A professional service robot, in contrast, is "used for a commercial task, usually operated by a properly trained operator that is designated to start, monitor, and stop the intended operation of a robot or a robot system." Examples of personal service robots include domestic servant robots and personal mobility assistance robots (e.g., cleaning robots for public places and delivery robots in offices or hospitals). Jörling et al. (2019) emphasize the customized nature of robotic service delivery, referring to service robots as a technology "providing customized services by performing physical as well as nonphysical tasks with a high degree of autonomy." Adopting a broader perspective that includes both virtual and physical representation of robots, Blut et al. (2021) defined service robots as autonomous service agents that can be "physically embodied or virtual (for example, voice or text-based chatbots)." These definitions emphasize service robots' social and interactive functionalities while highlighting their ability to perform autonomous tasks.

1.2. Service robots from employees' perspectives in the hospitality sector

To examine the interaction between employees and service robots, Osawa et al. (2017) conducted a field survey and analysis of the Henn-na hotel, which was built at the resort facility Huis Ten Bosch in Nagasaki Prefecture, Japan, in 2015. It maintains 80 robots, including cleaners, feminine robots, dinosaur-like agents at the front desk, desk robots for indoor customer service, and arm robots that carry luggage, porters, and porters. The robot (manufactured by Yasukawa) has an electric arm in the cloakroom that mechanically stores baggage. The reception robots (female, dinosaur, and Nao) are in the main building. Guests use the touch panel beside the reception robot to advance the menu. Depending on the button the visitor presses, the reception robot responds accordingly. Once the visitor is finished at reception, the porter robot brings packages to the room. The essentials are available for purchase from the vending machines. Cleaning robots are primarily used in common areas like hallways and lobbies. They found that the hotel uses robots to replace tasks, not jobs. The hotel uses robots as an aid in completing human work. With heavy and strenuous jobs such as cleaning and carrying luggage, employees will need the help of service robots. In their study, human employees still play a crucial role when they sense visitors' difficulties. However, in the case of human-run reception, each worker prefers certain types of visitors. The hotel can provide homogeneous emotional services to any visitor with service robots.

After two years, Li, Bonn, and Ye (2019) tested artificial intelligence and robotics awareness of hotel employees and its impact on turnover intention in China. The study was conducted among luxury hotels in Guangzhou, China, a major international metropolis and innovative South China city. They contacted human resources managers at 35 hotels, but a total of 12 managers agreed to participate in this study. Once they had received written approval from the top management of all hotel locations, they randomly delivered surveys to workers as they started their shifts. A total of 468 valid and useable responses were returned from these 12 hotel properties. Hierarchical linear modeling software version 7.01 was used to analyze this unique nature of the multilevel data. A two-level model was identified using an outcome variable to represent turnover intentions. Two independent variables were used at the hotel level to describe the perceived organizational support and competitive psychological climate.

The findings of this study provide credence to the idea that rising opinions about AI have a greater tendency to affect workers' plans to quit the sector adversely. Suppose human resource management departments in lodging properties can predict high levels of anticipated turnover intent among service employees whenever the operation launches AI programs across various lodging departments. In that case, the lodging property can take steps to combat these unfavorable feelings and reduce workforce defects. It has been demonstrated that documents that increase organizational support from top management help boost productivity and reduce stress. This shows that hotel staff members who get proper acknowledgment and believe their contributions are recognized are more motivated and productive than those who do not. This study demonstrated that AI awareness and turnover intent were strongest when employees felt they were working in a highly competitive environment.

During 40 in-depth interviews with various hotel departments' staff, Vatan and Dogan found the answers to the question "What do hotel employees think about service robots?" in 2021. Thematic analysis is used to define, analyze, and report themes in this study, and non-probability purposive sampling was conducted. The research focused on 5-star hotels because technological innovations and investments in the hospitality industry are generally applied first in five-star hotels. Semi-structured interviews were used within the framework of a qualitative research approach. The results suggest that the term "service robot" evokes negative feelings. Service robots may lead to an increase in unemployment. Additionally, the staff members mentioned that service robots could result in system and operational problems and more significant technical expenditures. Most staff displayed hostility against taking orders from a service robot. However, they had a very positive attitude toward instructing a service robot and claimed that working with it would stop or restrict conversation.

2. METHODOLOGY

2.1. Method of research

Quantitative and qualitative analytical methods were used to analyze and interpret the data. A qualitative study with a phenomenological method is used to conduct this investigation. Relying on psychologist Moustakas's (1994) approach, there are several reasons why this research is best examined using a phenomenological approach. Firstly, this study intends to investigate how hotel staff interact with service robots. Thus, a phenomenological approach was the most appropriate as the primary aim of the phenomenological method is to do justice to the lived experience of human phenomena (Giorgi, 1985). Understanding what benefits and challenges the hotel employees face while working with service robots is essential in developing practices and policies to ensure human resources in terms of quality and quantity. Secondly, due to the dramatic increase in applying service robots in the hospitality industry, it is a true phenomenon of interest to study.

Thematic analysis is a method for identifying, analyzing, and summarizing themes in the information in this study. Looking through data collection to identify, analyze, and record recurrent patterns is a step in the thematic analysis method for evaluating qualitative data (Braun & Clarke, 2006). It is a technique for conveying data, but when codes and themes are developed, interpretation is also a step in the process. The thematic analysis differs from other methods in that it may be used for various research issues, study designs, and sample sizes. It can also be used within many theoretical and epistemological frameworks. The guiding principles for coding data, identifying and developing themes, and presenting findings apply to several other qualitative approaches, including phenomenological and grounded theory studies (Watling & Lingard, 2012).

2.2. Sampling method

This study's participants are employees working in 5-star hotels in Can Tho City, Vietnam, which always apply early advanced techniques. They are the staff working in the Front Office and F&B department - the departments frequently apply technology in daily operations. Besides, Can Tho City, which is directly under the control of the central government and is situated in the heart of the Mekong Delta, has several advantages and development potentials for the tourism industry. Can Tho City also serves as a critical transportation hub for connecting the Mekong Delta's provinces and cities to other parts of Vietnam. Therefore, Can Tho is the Mekong Delta's tourism hub and economic, political, cultural, and social capital. The growth of Can Tho's tourism industry has significantly impacted Vietnam's tourism industry. We chose Can Tho City as the study area for the above reasons.

In guiding the study toward participant selection, relevance is even more crucial than representativeness (Flick, 2009). Dukes (1984) recommends studying three to ten subjects and one phenomenology, while Riemen (1986) studied ten individuals. Polkinghorne (1989) advises investigators to speak with five to 25 witnesses to the event. 43 candidates were interviewed for this paper. Their information is shown in Table 1.

Table 1: **Demographic characteristics of respondents**

Respondents codes	Gender	Age	Education	Position	Experience in tourism sector	Major related to tourism
R1	Male	29	Bachelor's degree	Receptionist	6 years	No
R2	Female	32	Bachelor's degree	Receptionist	6 years	Yes
R3	Male	35	Associate's degree	Front Office Duty Manager	10 years	Yes
R4	Male	28	Bachelor's degree	Receptionist	4 years	Yes
R5	Female	30	Associate's degree	Receptionist	8 years	No
R6	Male	23	Bachelor's degree	Receptionist	1 years	Yes
R7	Male	27	Bachelor's degree	Front Office Duty Manager	6 years	Yes
R8	Female	23	Bachelor's degree	Guest Relation Officer	10 months	Yes
R9	Male	23	Associate's degree	Bellman	2 years	Yes
R10	Male	30	Bachelor's degree	Front Office Duty Manager	9 years	Yes
R11	Female	27	High School	Receptionist	4 years	Yes
R12	Male	28	Bachelor's degree	F&B Staff	6 years	No
R13	Male	24	Bachelor's degree	F&B Staff	1 month	Yes
R14	Female	23	Bachelor's degree	F&B Staff	7 months	Yes
R15	Male	28	Bachelor's degree	F&B Shift Leader	5 years	Yes
R16	Male	23	Bachelor's degree	Bellman	1.5 years	Yes
R17	Female	23	Bachelor's degree	Guest Relation Officer	1 month	Yes
R18	Female	23	Bachelor's degree	F&B Staff	1 month	No
R19	Male	33	Bachelor's degree	Front Office Duty Manager	13 years	Yes
R20	Female	29	Bachelor's degree	F&B Staff	1 year	Yes
R21	Female	37	Associate's degree	Front Office Supervisor	10 years	Yes
R22	Female	30	High School	Receptionist	3 years	Yes
R23	Female	32	Bachelor's degree	Front Office Manager	7 years	Yes
R24	Female	28	Bachelor's degree	Guest Relation Officer	5 years	Yes
R25	Female	23	Associate's degree	Receptionist	2 years	Yes
R26	Female	29	High School	Assistant Front Office Manager	7.5 years	No
R27	Male	26	Bachelor's degree	F&B Staff	1.5 years	No
R28	Female	21	Associate's degree	F&B Staff	3 years	Yes
R29	Male	28	Bachelor's degree	F&B Shift Leader	5 years	Yes
R30	Female	24	Bachelor's degree	F&B Staff	6 months	Yes
R31	Male	27	Bachelor's degree	Guest Relation Officer	2 years	Yes
R32	Female	22	Bachelor's degree	F&B Staff	2 years	Yes
R33	Female	21	High School	F&B Staff	2 months	No
R34	Female	34	Bachelor's degree	Assistant Front Office Manager	7 years	No
R35	Female	43	Bachelor's degree	Deputy General Manager.	20 years	Yes
R36	Female	30	Bachelor's degree	Front Office Supervisor	5 years	Yes
R37	Female	31	Associate's degree	Reservationist	8 years	Yes
R38	Male	22	Bachelor's degree	F&B Staff	1 year	Yes
R39	Female	23	High School	F&B Staff	3.5 years	Yes
R40	Female	30	Bachelor's degree	Reservationist	8 years	No
R41	Male	23	Associate's degree	Guest Relation Officer	1.5 years	Yes
R42	Male	23	Bachelor's degree	Guest Assistant	2 years	Yes
R43	Male	32	High School	Front Office Manager	10 years	No

2.3. Data collection technique

In phenomenological research, descriptions of lived experiences are the primary data source. These descriptions can be gathered through interviews, observations, or written self-descriptions (Van Manen, 1990). In-depth interviews are the most effective and widespread way to gather personal experience descriptions in transcendental phenomenology. The type of interviews in this research includes semi-structured, open-ended, face-to-face, one-on-one, and computer-assisted. The employees were approached after office hours, endeavored to select a private location for the interviews, and given information regarding the nature and rationale of the research. The respondents were guaranteed the anonymity of the data and results. The participants in the study were contacted and selected through personal contacts. The researcher had a better chance to learn in-depth about the respondents' thoughts, perspectives, perceptions, and experiences using face-to-face and one-on-one techniques. Further, face-to-face interviews have allowed the researcher to clarify any ambiguities and essential points. Each interview was 15–20 minutes in duration. The interviews were audio-taped (with permission from the participant) to preserve an accurate interview account, which could be replayed for analytic purposes. Anonymity was assured during the recording.

The researcher chose the snowball sampling technique for the current investigation. This method is effective at contacting potential volunteers. In order to talk to employees about their job experiences, the researchers leveraged their personal connections and social media. The snowball method was used to make new connections for interviews to gather data. Experts such as hotel managers and academicians tested the list of questions before being interviewed. Interviews were conducted in Vietnamese. The responses were then translated back into English.

2.4. Data analysis

Data horizontalization is the initial phase. The researcher made a verbatim transcription of each participant's audio recording immediately following the conclusion of each interview by repeatedly listening to it. It is vital to record only statements pertinent to the phenomenon under investigation, discarding any others. This activity is done to understand how the participants described their experiences. The authors reviewed the information and highlighted noteworthy lines, statements, or quotes that helped to understand how the participants perceived the phenomenon. Then, a summary of what the participants experienced was written using these key phrases and topics. The authors created a list of separate, unrelated statements to ensure that every assertion is given equal weight. The authors then grouped the crucial words into more significant chunks of material called theme clusters. Then, theme clusters reflecting a particular point of view are combined to make themes. Next, we described the phenomenon and how the study's participants interacted with it using themes. Besides, this study also used descriptive statistics to analyze hotel staff's willingness to work with robots.

3. FINDINGS

3.1. Perception of hotel employees towards the phrase "service robots"

20 respondents said "No", and 23 of them said "Yes" when asked if they were familiar with the term "service robot." Almost half of the hotel staff surveyed said they had never heard of service robots or had only heard of them rarely.

Table 2: **Thinking towards service robots**

Themes	Sub-themes	n
Attribute	Programmed	7
	Automatic	4
	Standard	1
Function	Food serving	1
	Service supporting	10
	Supporting humans	3
	Greeting	1

As indicated in Table 2, based on the responses provided to the question, "When you hear the phrase "service robots", what do you think about it?" two themes emerged in the category of thinking towards service robots: attribute and function. Under the theme attribute, there are some sub-themes, such as programmed, automatic, and standard. The following are some of the replies from the respondents that strengthen these sub-themes: R2: "It is an automatic machine that carries out human control commands.". R19,20: "It is automation.". R36: "Service robots are a type of perfectly programmed machine.". R37: "It works stereotypically, according to standards.". R33: "A robot that runs according to programming."

Under the theme function, there are several sub-themes, such as food serving, service supporting, supporting humans, and greeting. Some of the responses from the participants that support these sub-themes include the following: R1: "It is a type of robot specialized in serving customers food.". R5: "It is a high-tech device that supports or replaces employees to provide customer services." R21: "A product created to partially assist people in their work, helping to work faster and more conveniently.". R22: "Service robots are for welcoming customers.". R24: "It is a pre-programmed or human-controlled intelligent device that assists humans in the service industry.". R28: "It is a device that replaces humans to do difficult tasks.".

During the data analysis process, the authors discovered that the opinions of respondents who belonged to Generation Z and those who belonged to Generation Y differed. Regarding the development of service robots, respondents from Generation Z hold a positive view. They consider that advances in science and technology, particularly artificial intelligence (AI), led to the development of service robots (R4, R11). According to them, we should embrace service robots as a necessary social development as quickly as possible (R6). "This will be a big turning point in the process of work reform and service quality when robots participate in the operation process," R 41 stated.

3.2. The effects of service robots on employees

As shown in Table 3, the potential benefits that robots may offer employees are divided into six themes: reducing errors, saving time, saving energy, reducing work pressure, being safe, and improving work productivity. Some participants' replies support these themes: R34: "Customers' data will be recorded more accurately, with fewer errors than when employees enter data.". R2: "Thanks to the support of service robots, the service process will be quick, helping to save time for staff.". R41: "It supports heavy tasks, high workload, saving employees' energy.". R4: "It supports employees in many stages, helping employees reduce workload and work pressure.". R8: "Robots can assist humans in solving difficult or highly dangerous problems for humans.". R39: "It helps employees improve productivity and work efficiency.".

Table 3: **Positive effects of service robots on employees**

Themes	n	Respondents
Reducing errors	5	R1, R10, R34, R35, R37
Saving time	9	R1, R2, R5, R20, R23, R34, R35, R37, R43
Saving energy	3	R9, R12, R41
Reducing work pressure	4	R4, R21, R32, R37
Being safe	4	R8, R18, R24, R35
Improving work productivity	4	R11, R18, R36, R39

Table 4 illustrates the four themes that group the possible drawbacks that service robots could provide for hotel employees. They are job loss, limited communication, boring working environment, and taking time to adapt. Some of the respondents' responses supporting these themes are as follows: R21: "Hotels will reduce their need for human resources.". R17: "The number of employees will be more limited due to robot support. Many employees will lose their jobs.". R3: "Thanks to robot intervention, hotel staff will no longer interact as much with customers as before, limiting communication between staff and customers.". R34: "The working environment is boring.". R7: "Employees must get used to and learn how to use the robot, which takes time for employees to adapt."

Table 4: **Negative effects of service robots on employees**

Themes	n	Respondents
Job loss	7	R13, R17, R21, R27, R32, R35, R43
Limited communication	2	R3, R4
Boring working environment	1	R34
Taking time to adapt	2	R7, R41

3.3. The effects of service robots on hotels

As illustrated in Table 5, the hotel employees believe that six themes bring advantages to the hotels when using service robots. They are optimizing human resources, reducing staff costs, improving image, ensuring standard operating procedure, creating attractiveness, and increasing competitiveness. Several of the replies from the participants provide validity to these themes: R6: "Robots can work continuously without stopping for many hours. Hotels can optimize human resources, especially during peak season.". R20: "Spend less on personnel costs and reduce recruitment - training costs.". R10: "My hotel will be more modern and professional by technical superiority.". R30: "Service robots will create a new thing for hotels to attract customers and increase competitiveness.". R24: "Service robots always follow the standard procedures with high accuracy.". R6: "It increases employee competitiveness, forcing employees to enhance their work performance.".

Table 5: **Positive effects of service robots on hotels**

Themes	n	Respondents
Optimizing human resources	7	R1, R6, R16, R17, R24, R33, R42
Reducing staff costs	6	R1, R5, R10, R20, R23, R40
Improving image	6	R3, R10, R31, R35, R37, R38
Ensuring standard operating procedure	6	R9, R15, R18, R24, R39, R41
Creating attractiveness	6	R3, R8, R19, R22, R27, R30
Increasing competitiveness	1	R6

Besides, according to them, service robots also bring many disadvantages to hotels. It includes seven themes, shown in Table 6. The drawbacks are requiring highly qualified managers, being rigid, high installation costs, inability to show hospitality and enthusiasm, inability to solve emergent problems, inability to empathize and care, and inability to create wow experience. Some respondents' responses support these themes: R21: "Hotels need to have highly qualified managers to manage operations and repair robots in case of sudden damage.". R23: "It works in a stereotyped manner. It is not flexible enough to handle unexpected changes or special customer requests.". R41: "Hotels have to spend a high initial cost to equip robots. There are also costs and time required for operation and maintenance.". R19: "Robots cannot chat and interact with customers like humans. They cannot show hospitality and enthusiasm.", "Robots cannot create wow experiences for customers because they do not have the ability to create like humans.". R24: "In situations of handling emergent problems, robots have no capacity because they have pre-programmed processes.". R11: "There are things related to feelings and emotions that I think robots will not be able to do like humans. They cannot understand customers' feelings while understanding is an essential requirement in the service industry.". R36: "In some situations, robots will not be able to help handle or improve the customer's mood.".

Table 6: **Negative effects of service robots on hotels**

Themes	n	Respondents
Requiring highly qualified managers	2	R1, R21
Being rigid	9	R1, R3, R5, R20, R23, R34, R36, R37, R40
High installation costs	5	R10, R21, R24, R27, R41
Inability to show hospitality and enthusiasm	2	R19, R37
Inability to solve emergent problems	9	R6, R8, R9, R13, R16, R24, R29, R39, R42
Inability to empathize and care	7	R11, R12, R13, R24, R29, R38, 36
Inability to create wow experience	2	R15, R16

3.4. The effects of service robots on customers

Service robots bring certain benefits to customers. According to the opinions of the hotel staff interviewed, six beneficial themes are presented in Table 7. They are being more comfortable making requests, saving time, being convenient, receiving a stable service attitude, easily giving feedback, and increasing enjoyment. Several respondents' comments support these themes: R1: "Customers may feel more comfortable and confident when making service requests.". R15: "Robots comply with time in processes, so they will help customers save time.". R28: "Customers will be more convenient with the assistance of robots, for example, when checking in and checking out.". R8: "Customers will receive a stable service attitude because a robot is non-emotional. They are not influenced by emotions or external influences such as weather, colleagues, customer personality, etc.". R13: "Thanks to the robot's service, visitors can easily give feedback to the management board.". R32: "Robots help increase excitement and new experiences for customers.".

Table 7: **Positive effects of service robots on customers**

Themes	n	Respondents
Being more comfortable to make requests	1	R1
Saving time	20	R1, R2, R4, R5, R6, R8, R9, R15, R16, R17, R20, R23, R28, R30, R34, R35, R37, R39, R41, R43
Being convenient	6	R3, R4, R13, R17, R20, R28
Receiving a stable service attitude	1	R8
Easily giving feedback	1	R13
Increasing enjoyment	2	R32, R41

Besides, robots also cause problems for customers. Table 8 shows four themes compiled from the respondents: getting bad experience when robots are errored, feeling of strangeness and unfamiliarity, failure to get extra information, and feeling unsafe when problems occur. Several respondents' comments support these themes: R2: "The machine will be defective. When robots have problems, it will affect work progress as well as lead to delays in serving customers, affecting the customer experience.". R40: "Robots are emotionless, distant, not close to customers, and cannot create a familiar feeling of home for customers.". R9: "Robots have difficulty answering customers' extra questions, for example information of restaurants, entertainment.". R33: "When a problem occurs, robots cannot solve it, making customers feel unsafe and worried.".

Table 8: **Negative effects of service robots on customers**

Themes	n	Respondents
Getting bad experience when robots are errored	7	R2, R21, R24, R25, R35, R41, R42
Feeling of strangeness and unfamiliarity	3	R2, R3, R40
Failure to get extra information	1	R9
Feeling unsafe when problems occur	1	R33

3.5. Level of readiness of hotel employees to work with service robots

With the advancement of technology, the hotel industry is increasingly integrating service robots. Assessing hotel personnel's readiness to cooperate with robots is crucial to ensuring their successful implementation. Their average level for being ready to work with service robots is 5.93 on a 10-point scale. This result implies a certain level of preparation among the personnel surveyed. Looking at Gen Y employees in particular, their average score, which is 5.59, is slightly lower than the overall average. Notably, there are considerable differences in the preparation levels among Gen Y hotel staff. 4 is the lowest readiness score of Gen Y hotel employees, whereas the highest score is 9, indicating a significant receptivity and openness to this technology integration.

When it comes to being prepared to work with service robots, Gen Z employees are more prepared than Gen Y. This generation's score is 6.15 on average, which is much higher than the average for the whole respondents. Interviews with gen Z workers suggest they are more receptive to service robots. Similar to Gen Y, Gen Z staff are not all created equal regarding preparedness. Only a tiny percentage of people in this generation are not yet ready to adopt this technological innovation, as seen by the lowest preparedness score ever recorded—1. However, the maximum score received by a Gen Z worker is 9, indicating a significant preference for collaborating well with service robots.

According to the survey findings, Gen Z employees are more prepared and eager to work with service robots than Gen Y employees. Employees in Generation Z have better readiness scores on average than the general population, which may indicate that they are more accepting of this technology integration. The preparedness levels of both generations differ, however, with some staff exhibiting more reluctance to collaborate with service robots.

CONCLUSION

Several fascinating insights have emerged in this research exploring the perception of Vietnamese hotel employees toward service robots. Firstly, a noteworthy finding is that 46.5% of respondents are unfamiliar with the phrase "service robots," which is still a new definition. They admitted having little knowledge about service robots. They either had never heard of them or were only vaguely aware of their existence. This lack of awareness indicates Vietnam's limited popularity and adoption of service robots. In Vietnam, robots have not been ubiquitous in the hospitality industry, especially in the hotel sector. Particularly in Can Tho, a city in Vietnam, few hotels have embraced service robots to cater to their customers' needs.

53.5% of the remaining respondents have heard about service robots through TV or social media. They have not collaborated with robots before. Although half of them have experienced about service robots, their general definition of service robots is comprehensive. These employees defined service robots based on the attributes and functions. Regarding attributes, they perceive service robots as programmed, automatic (Wirtz et al.,2018), and standardized. Regarding function, they associate service robots with tasks such as food serving, service supporting (Blut et al., 2021), supporting humans (IFR, 2016), and greeting customers. Interestingly, the younger generation, Gen Z employees, show a positive view of the technological advancements, particularly artificial intelligence (AI), that underpin service robots. They view the integration of robots in the service industry as an inevitable and exciting development.

Secondly, the research explores the benefits of service robots for hotel employees. Most Vietnamese hotel staff assume that the most significant thing that service robots bring to them is saving time. With automation, service robots will reduce the time of performing some processes, such as checking in or out. The staff have more time to meet other customers' needs, take care of them, or build relationships. Besides this benefit, they believed that service robots also bring others: reducing error and work pressure, being

safe, improving work productivity, and saving their energy. However, it is essential to consider the possible drawbacks that come hand in hand with using service robots in hotels. Most of them are afraid of job loss when service robots emerge (Vatan & Dogan, 2021). With advanced and intelligent programming, service robots have the ability to complete many missions that humans can. This leads to the fear that it will replace people in the future. Besides, they worry that service robots will limit their communication opportunities to each other and customers. It leads to a boring working environment (Vatan & Dogan, 2021). Next, it takes time for them to adapt.

Furthermore, the hotel employees participating in the study shared their perspectives on the advantages and disadvantages that service robots bring to hotels. On the positive side, they believe that service robots optimize human resources, reduce staff costs (Vatan & Dogan, 2021), enhance the hotel's image (Vatan & Dogan, 2021), ensure adherence to standard operating procedures, create a more attractive environment (Vatan & Dogan, 2021), and increase competitiveness (Vatan & Dogan, 2021). Most employees think that using robots will help hotels optimize human resources. Thanks to service robots, hotels can effectively arrange human resources to serve customers in peak season, mainly thanks to their ability to work continuously. However, there are also drawbacks to consider. Being rigid and unable to solve emergent problems are service robots' most significant drawbacks. With the feature of programmed settings, they are not flexible enough to satisfy customers' diversity of requests. Moreover, when emergent problems come, they have no ability to analyze and offer solutions to solve them, which are skills that only humans obtain. The following disadvantages that many respondents agree are the inability to empathize and care, high installation costs (Vatan & Dogan, 2021), requiring highly qualified managers, the inability to show hospitality and create a wow experience for customers.

Next, service robots have the potential to bring certain benefits to customers. Most hotel employees believe that service robots will save time for customers. Customers can actively perform some procedures, such as checking in or out by themselves. Service robots ensure the limitation of time to complete each progress. This leads to another benefit – convenience. Some staff think that guesses may feel more comfortable making requests. They can receive a consistent serving attitude. They efficiently provide feedback and experience increased enjoyment during their stay. However, most respondents think that customers will get an unnerving experience when robots are errored. Besides, a sense of strangeness or unfamiliarity when interacting with robots, the inability to obtain additional information beyond what the robots are programmed to provide, and a feeling of insecurity when problems arise that robots may not be equipped to handle are also potential problems that customers may encounter.

Finally, the research delves into the readiness of Vietnamese hotel employees to work with service robots. On average, the employees' readiness level is measured at 5.93 on a 10-point scale. It is not a high score, which means that Vietnamese hotel staff are not well-prepared to collaborate with service robots. Gen Y employees exhibit a slightly lower average score of 5.59 compared to the overall average. Many staff who have worked in the hotel industry for a long time believe that humans cannot be replaced by service robots. Humans are the most essential factor in the service industry; they can empathize with customers, meet their unique needs, and "wow" them. In contrast, Gen Z employees demonstrate a higher level of preparedness, with an average score of 6.15, much higher than the average score of Gen Y and even the overall score. Gen Z was born in the era of technological development. They are more open and receptive to integrating service robots into their work environment. They have more ability to adapt to machines and robots.

Theoretical implications

In terms of empirical contributions, this paper significantly contributes to the existing body of knowledge by providing findings from the perspective of Vietnamese hotel employees. These findings align with previous research and further strengthen the foundations of knowledge in this area. The study reveals that Vietnamese hotel employees possess a basic understanding of service robots and their implications. They recognize the benefits and drawbacks of robots to themselves, hotels, and customers. One notable finding is that Vietnamese employees recognize the growing trend of using robots in the hospitality industry. They understand that integrating robots into hotel operations will likely increase in the future. This awareness indicates an average level of readiness among Vietnamese hotel employees to work with robots. Their willingness surpasses the average level, demonstrating a positive attitude toward adopting this technology. However, it is essential to note that not all employees have a positive attitude towards robots. Some still exhibit a negative perception, primarily driven by concerns about job security. These employees fear that the use of robots may lead to job displacement or even job loss. This highlights a significant concern that needs to be addressed when implementing robots in the hospitality industry.

Managerial implications

From a practical standpoint, the results of this research have significant implications for hotel managers. By understanding the perceptions and attitudes of their employees towards robots, managers can make informed decisions about integrating this technology into their operations. This understanding allows them to create effective plans and strategies for deploying robots while ensuring employees accept and embrace this change. Furthermore, the findings of this study have broader implications for regulators in the hospitality industry. Hoteliers must have an overview of the benefits and disadvantages of using robots to devise appropriate measures to address potential challenges. By understanding the potential impact of robot adoption on the workforce and the industry, they can develop policies and guidelines that facilitate the responsible and effective use of service robots.

Limitation and future research

The study has certain limitations that provide guidance for future research. Firstly, as this study solely concentrated on one particular geographic area, future research can broaden the scope of the study to include additional nations in the region with different cultural traditions and levels of economic development. Secondly, the writers' investigation was limited to the opinions of hotel staff who operate in establishments devoid of service robot involvement. As a result, future research studies can use scenarios where robots assist customers. Lastly, because the contact between staff and robots was the primary focus of this research, it is also necessary to consider the relationship between customers and robots.

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