

Analysis of Gen Z's Interaction with Digital Voice Assistant using TAM Approach

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Abstract

This study aims to investigate Generation Z's readiness to utilize new technology in the field of Digital Voice Assistants for application to hotel services. This research employs a descriptive approach with a quantitative methodology, utilizing a survey method to assess the optimization of Digital Voice Assistants among Generation Z. The analysis was conducted based on three concepts of the Technology Acceptance Model (TAM), which encompasses four indicators: perceived usefulness, perceived ease of use, attitude towards use, and behavioral intention. The results indicated that perceived usefulness had a mean score of 3.9, perceived ease of use had a mean score of 3.8, attitude toward use had a mean score of 3.8, and behavioral intention had a mean score of 3.5, suggesting that all indicators demonstrated high scores based on reference values. The implications of this research suggest that Generation Z can accept DVA technology for potential implementation in hotel services.

Keywords:

TAM model; Technology Assistant Model; Digital Voice Assistant; Z Generation

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1. Introduction

Voice technology is constantly evolving for consumers and businesses. With machine learning and artificial intelligence (AI) evolving worldwide and an increasing number of connected devices entering markets around the world, *voice recognition* has become an essential part of a wide range of services and devices. The global voice recognition technology market is projected to reach nearly 16 million US dollars in 2022 and nearly 28 million US dollars by 2028. Here, is the data from the statista about the voice tech market:

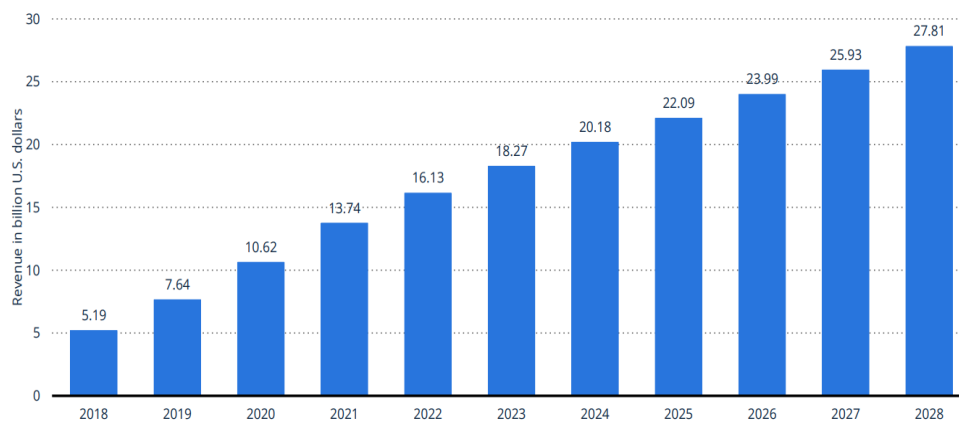


Figure 1. Sales volume of the smart speaker's industry Worldwide 2018-2028

Based on the graph data, the voice technology market has shown a significant growth trend in recent years. This shows that voice technology is becoming increasingly popular and has been adopted by various industries and users. Voice technology can be divided into two main parts: phonetic recognition of different words, and the interpretation of actual language as it is spoken, a field also known as Natural Language Processing (NLP) (Statista, 2024). In the context of Natural Language Processing (NLP), there is the use of anthropomorphism, which refers to the use of language to describe non-human objects or processes as if they had human qualities or behaviors. Anthropomorphism is a powerful tool to improve NLP understanding, engagement, and creativity. However, it is important to use anthropomorphism responsibly and to be aware of its potential challenges. According to Epley, anthropomorphism describes the tendency to inspire the real or imaginary behaviors of non-human agents with human-like characteristics, motivations, intentions, or emotions. Anthropomorphism in the context of AI virtual assistants refers to the assignment of human characteristics, behaviors, or traits to nonhuman AI entities. The implementation of anthropomorphism in AI developers seeks to make the interactions between users and AI more natural, familiar, and friendly. This can increase user trust in AI and make it easier for them to adapt to new technologies.

Based on the Qian statement (Chen et al., 2024) that digital voice assistants (DVA) enter our lives, academics recognize the growing importance of DVA, and many DVA-related studies have emerged. DVA is a type of intelligent voice technology that assists people in accomplishing various tasks. This indicates that the argument or observation of DVAs is based on established research or expert opinions. This adds credibility to the claim being made as it is rooted in scholarly work. The phrase "DVAs enter our lives" suggests that digital voice assistants have become an integral part of everyday life. This reflects the widespread adoption and use of DVAs in various contexts such as smart homes, mobile devices, and customer service.

In recent years, numerous businesses have integrated Digital Virtual Assistants (DVAs) into their customer support platforms to manage routine queries and deliver automated help, particularly in the hospitality sector such as hotels. These AI-driven tools have become prevalent in hotel customer service systems and can address various basic tasks and inquiries. DVAs, including intelligent personal assistants (IPAs), are increasingly shaping the experiences of Generation Z (Gen Z) consumers and hotel employees, revolutionizing interactions within the hospitality industry. For Gen Z consumers, DVAs offer benefits such as hands-free, voice-activated operations, and the ability to multitask. Related to this study, Bolvanis and Moldaska examined the phenomenon of voice-based digital assistants' adoption by hotels to automate workflows and enhance guests' experiences. This study analyzed the role of voice devices in mediating interactions between hotels and guests from both hospitality technology providers' and guests' perspectives. This study proposes a model that illustrates the essence of speech-based interactions between hotels and guests via voice assistants. This concept contributes to human-computer interactions in the hotel industry. Their investigation provided valuable insights into the practical implementation of voice-based digital assistants in hospitality settings. The proposed model not only illustrates the current state of voice-assisted interactions, but also has broader implications for the field.

Based on this statement, this research examines how this technology is being adopted and utilized in the hospitality industry, focusing on Gen Z. Modern hotel guests, especially the younger generations, expect convenient, digital, and personalized experiences. Understanding how Gen Z staff members interact with DVAs can help hotels meet evolving customer needs. DVAs can streamline hotel operations and enhance staff productivity. Research on their use among Gen Z employees could reveal opportunities for optimizing workflows and service delivery. As more Gen Z individuals enter the workforce, understanding their interactions with and acceptance of technologies such as DVAs is vital for effective training and integration.

Hotel Horison that has 50% amount staff on Gen Z from total staffs, has a potential to develop their services with emerging new technologies as a future prospect. The Horison Hotel, situated in the city center of Bekasi, possesses significant potential for expansion to broaden its customer base. Bekasi, a metropolitan city characterized by industrial centers and serving as a buffer city for business hubs, has recently experienced infrastructural developments, including the implementation of high-speed rail lines, long-distance trains, and Light Rail Transit (LRT). These advancements present opportunities for the establishment of business and transit facilities that require modern amenities and innovative technologies. This developmental potential provides an impetus for research on the preparedness of hotel personnel to utilize technological resources.

The purpose of this research is to explore the readiness of horison hotel staff to adopt and utilize new technological resources. It aims to provide a comprehensive understanding of the factors influencing staff preparedness, potential barriers to technology adoption, and overall impact on hotel operations and guest satisfaction. By examining staff attitudes, skills, and knowledge related to emerging technologies, this study aimed to identify gaps in training and support that may impede successful implementation. Therefore, this study employs the Technology Acceptance Model (TAM) to investigate the readiness of hotel staff to utilize Digital Voice Assistants (DVA).

TAM is a widely used framework in quantitative research to explain and predict how users accept and use a particular technology. Developed by Davis in 1989, the TAM is rooted in the Theory of Reasoned Action (TRA) and has been extensively applied across various fields, particularly in information systems, to study the adoption of new technologies (Davis & Granić, 2024). TAM posits that two primary factors influence an individual's decision to accept and use a technology: Perceived Usefulness (PU) and perceived Ease of Use (PEOU). Perceived usefulness is the degree to which a person believes that using a particular technology will enhance their job performance or overall effectiveness. For example, if employees believe that a new software system will help them complete their tasks more efficiently, they will be more likely to use it. Perceived Ease of Use (PEOU) is Perceived ease of use refers to the degree to which a person believes that using the technology will be free of effort. This factor emphasizes the simplicity and ease with which technology can be learned and used.

Furthermore, this research intends to evaluate the potential benefits and challenges associated with integrating new technological resources into a hotel's existing systems and processes. It explores how these advancements can enhance operational efficiency, improve guest experiences, and potentially create competitive advantages in the hospitality industry. The findings from this study will not only inform Hotel Horison's technology adoption strategies, but also contribute to a broader understanding of technology readiness in the hospitality sector, potentially offering insights applicable to similar establishments facing digital transformation challenges.

2. Method

This study is descriptive research that uses a quantitative approach. Quantitative research is a systematic investigation that primarily focuses on quantifying the relationships between variables, often through statistical analyses. According to Creswell, quantitative research is deductive, objective, and focuses on testing hypotheses or theories (John W. Creswell; Cheryl N. Poth, 2017). The goal was to identify patterns, make predictions, and establish generalizable facts across populations. The data used in this study are primary data obtained directly from the distribution of questionnaires to Digital Voice Assistant users and staff at the Horison Hotel Bekasi.

In quantitative research, TAM is often employed to test hypotheses regarding the acceptance and usage of a technology. Researchers use TAM to quantify the relationships between the model's constructs; the Technology Acceptance Model (TAM) is a widely used framework in quantitative research to explain and predict how users come to accept and use a particular technology. Developed by Davis in 1989, TAM is rooted in the Theory of Reasoned Action (TRA) and has been extensively applied across various fields, particularly in information systems, to study the adoption of new technologies (Davis & Granić, 2024). TAM posits that two primary factors influence an individual's decision to accept and use a technology: Perceived Usefulness (PU) and perceived Ease of Use (PEOU). Perceived usefulness is the degree to which a person believes that using a particular technology will enhance their job performance or overall effectiveness. For example, if employees believe that a new software system will help them complete their tasks more efficiently, they will be more likely to use it. Perceived Ease of Use (PEOU) is Perceived ease of use refers to the degree to which a person believes that using the technology will be free of effort. This factor emphasizes the simplicity and ease with which technology can be learned and used.

This study uses a non-probability sampling method by applying Purposive sampling techniques to get respondents who meet the criteria Considerations carried out in the determination of respondent criteria in this purposive sampling technique can be varied and adjusted to research needs. In this study, the researchers recruited 31 respondents from Gen Z to the staff of Horison Hotel Bekasi, who used DVA for their purposes. The total number of Horison Hotel staff is 50% of the total number of staff, from this number of Gen Z a sample of 30% of the Gen Z population was taken.

The data collection method is carried out through a survey using instruments in the form of questionnaires. The proposed research questionnaire consisted of several statements with structured answers that have an interval scale between 1 and 5 with details of answers Strongly Disagree (STS=1), Disagree (TS=2), Disagree (KS=3), Agree (S=4), and Strongly Agree (SS=5). This questionnaire consisted of six construct variables adopted from the Technology Acceptance Model (TAM) theory with a total of 20 indicators. According to Sugiyono (Sugiyono, 2017) to ascertain whether a respondent's answer falls within a high, medium, or low answer category, it is necessary to first establish the interval scale using the following methodology:

Table1. Score Intepretation

Category	Scala
Very low	1,00-1,80
Low	1,81-2,60
Fair	2,61-3,40
High	3,41-4,20
Very high	4,21-5,00

A validity test is an assessment of the accuracy and appropriateness of the measuring instrument used in a study. The validity test was employed to determine the validity of each item in the instrument, which can be ascertained by correlating the item score with the total score. If the correlation coefficient (r_{count}) is greater than or equal to (r_{table}), specifically 0.3, the statement is deemed valid. If the correlation value falls below 0.3, it can be concluded that the statement items on the instrument are invalid and must be revised or eliminated.

Table 2. Validity Test Result

Code	r (count)	R (table)	Criteria
X1	0,500219	0,355	Valid
X2	0,700978	0,355	Valid
X3	0,718154	0,355	Valid
X4	0,503595	0,355	Valid
X5	0,692534	0,355	Valid
X6	0,853135	0,355	Valid
X7	0,674997	0,355	Valid
X8	0,863378	0,355	Valid
X9	0,872185	0,355	Valid
X10	0,849304	0,355	Valid
X11	0,758184	0,355	Valid
X12	0,688484	0,355	Valid
X13	0,850389	0,355	Valid
X14	0,803905	0,355	Valid
X15	0,711256	0,355	Valid
X16	0,868715	0,355	Valid
X17	0,83898	0,355	Valid
X18	0,808314	0,355	Valid
X19	0,815871	0,355	Valid
X20	0,854259	0,355	Valid

Following a series of comprehensive steps, validity testing was conducted (Table 2), involving 30 respondents, utilizing Microsoft Excel software to evaluate the validity and reliability of the data. The data were considered valid if the calculated correlation value exceeded the predetermined critical correlation value. If any statement did not meet this criterion, the study could not proceed until the statement was revised to meet predetermined validity criteria.

Table 3. Reliability Test Result

Reference Value	Cronbach Alpha Value	Criteria
0,7	0,96	Reliable

Cronbach's alpha (α) is commonly used to measure the internal reliability of a measurement instrument. Its value ranges between 0 and 1; the higher the value, the higher the reliability is. Cronbach's alpha coefficient value ranges from 0.00 to 1.00, with a benchmark of ≥ 0.7 , which is used as a reference so that the measuring instrument is declared reliable.

3. Results and Discussion

Horizon Hotels, a luxury hospitality brand, is adapting its services to meet the needs of its customers, who prioritize convenience, digital solutions, and personalized experiences. The hotel staff, which are mostly Gen Z, must offer fast and efficient communication while also ensuring that services are customized to each guest's preferences. With their familiarity with technology and understanding of modern trends, these young staff members are well equipped to provide a quick, responsive service that today's guests expect. Moreover, Gen Z staff are also in tune with the growing demand for sustainability, ensuring eco-friendly practices are integrated into daily hotel operations, helping Horizon Hotels stay competitive and relevant in a rapidly changing industry.

We conducted a survey with Gen Z correspondents to explore their experiences with Digital Voice Assistants (DVAs), uncovering both positive engagement and significant challenges.

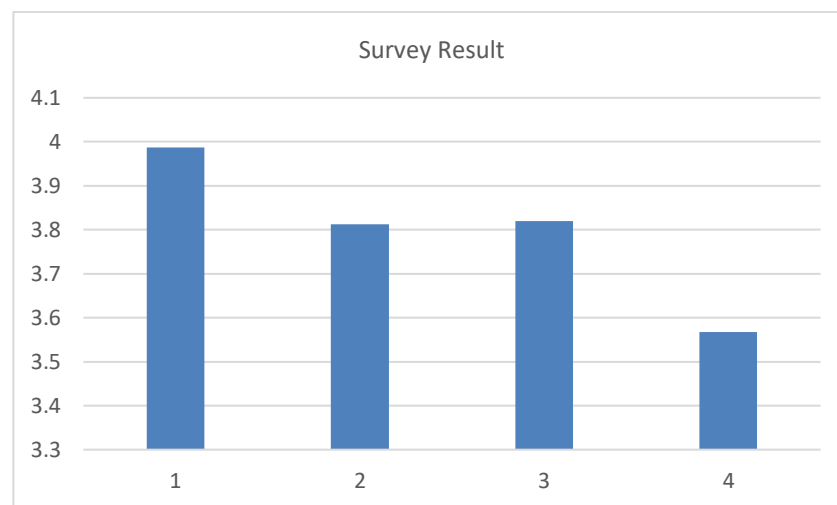


Figure 2. Survey Result

Based on the reference score, we interpreted the survey results for Gen Z's interaction with Digital Voice Assistants (DVAs) using the Technology Acceptance Model (TAM) approach: 1. Perceived Usefulness: Average score: 3.9, reference range: 3.41 - 4.20 (High) this indicates Gen Z perceives DVAs as highly useful for their daily tasks and work. They see the significant value and benefits of using this technology. 2. Perceived Ease of Use: average score: 3.8, reference range: 3.41 - 4.20 (High) Gen Z finds DVAs easy to use and interact with. A high score suggests that the technology is intuitive and user-friendly for this demographic. 3. Attitude Toward Use: average score: 3.8, reference range: 3.41 - 4.20 (High) Gen Z has a positive attitude towards using DVAs. They are receptive to adopting and integrating this technology into their daily lives and work routines. 4. Behavioral Intention: average score: 3.5, reference range: 3.41 - 4.20 (High), while still in the "High" range, which is the lowest score among the four indicators. This suggests that while Gen Z has positive perceptions and attitudes, their actual intention to use DVAs consistently may be slightly lower than other factors.

The survey results provide valuable insights into Generation Z's interaction with Digital Voice Assistants (DVAs) using the Technology Acceptance Model (TAM). The data revealed a generally positive reception of DVAs among Gen Z users, with high scores across four key indicators: Perceived Usefulness, Perceived Ease of Use, Attitude Toward Use, and Behavioral Intention. The highest score was observed for Perceived Usefulness (3.9), indicating that Gen Z recognized significant value in DVAs for their daily tasks and work. This is closely followed by Perceived Ease of Use and Attitude Toward Use, both scoring 3.8, suggesting that Gen Z finds DVAs intuitive and user-friendly and maintains a positive attitude towards their adoption and integration into daily routines.

Interestingly, while still in the "High" range, Behavioral Intention scored the lowest at 3.5. This slight discrepancy between the other indicators and Behavioral Intention suggests that while Gen Z individuals perceive DVAs positively and find them useful and easy to use, there might be some factors influencing their actual intention to use DVAs consistently. This could be due to various reasons, such as privacy concerns, preference for alternative technologies, or simply not having formed a habit of regular DVA use. Further research on this aspect could provide valuable insights for DVA developers and marketers to bridge this gap and potentially increase adoption rates among Gen Z users. Overall, the results indicate high acceptance and readiness among Gen Z hotel staff for DVA technology across all the TAM indicators. This suggests that DVAs can be

successfully implemented in hotel operations targeting Gen Z employees and customers. However, strategies to increase behavioral intention may be required to maximize adoption and consistent usage.

Based on research conducted by (Buhalis & Moldavska, 2022) it has been demonstrated that there are requirements from end-users' perspectives, hotels and guests, exploring VA advantages and challenges. The analysis indicates that VAs is becoming increasingly digital assistants. VA technology assists hotels in improving customer service, expanding operational capabilities, and reducing costs. In its early stages, VA technology has made progress towards optimizing hotel operations and enhancing customer service. This study proposed a speech-enabled interaction model. This implication reinforces the fact that digital voice assistance technology has the potential for application in hotel services. Guests who are typically hesitant to communicate with staff significantly reduce barriers to interaction with the hotel. Guests often experience discomfort when requesting certain types of services and are reluctant to disclose information to service providers, particularly to those from different cultural backgrounds. The ability to communicate in multiple languages is another benefit that consumers appreciate. This can be addressed using contactless devices, including VAs, which offer seamless interactions.

This investigation constitutes a preliminary examination of staff preparedness to recognize and utilize digital voice assistant technology. This aligns with research conducted by Demir et al. (Demir et al., 2023) stated that employers and employees need to be cognizant of employment developments in the tourism industry, including hospitality, as this can significantly impact human resource planning through digital transformation and innovation. These investigations serve as an initial exploration of staff readiness to identify and effectively employ digital voice assistant technology in their work environments. This study aimed to assess the current level of understanding, comfort, and proficiency among employees regarding these emerging technological tools. By examining staff preparedness, organizations can gain valuable insights into the potential gaps in knowledge or skills that may need to be addressed through training programs or updated operational procedures.

The focus on digital voice assistance technology aligns with the broader trend of digital transformation in various industries, including hospitality and tourism. As highlighted by Demir et al. (2023), both employers and employees must remain aware of the evolving employment trends and technological advancements in these sectors. This awareness is crucial for effective human resource planning, as it enables organizations to anticipate and adapt to the changing landscape of work. By understanding staff preparedness for digital voice assistants, companies can strategize their approach to integrating these technologies, ensuring a smooth transition, and maximizing the potential benefits of innovation in their operations. The implications of this study are significant for the hospitality and tourism industry. By assessing staff readiness for digital voice assistance technology, organizations can identify potential gaps in knowledge and skills, informing the development of targeted training programs and operational procedures. This proactive approach aligns with the need for employers and employees to remain informed about technological advancements and employment trends, as emphasized by Demir et al. (2023). These findings can guide human resource planning strategies and help companies prepare their workforce for the integration of emerging technologies. This study contributes to the broader understanding of digital transformation in the industry, potentially influencing how organizations approach innovation and adapt to changing work environments. Ultimately, this study's insights could lead to more effective implementation of digital voice assistants, enhancing operational efficiency, and improving service delivery in hospitality and tourism settings.

The findings of this study reveal that Generation Z hotel staff are ready to accept DVA technology and use it for their daily needs and work support. This can be a consideration for

recommendations at the current Harison Hotel to expand the target market in Generation Z by utilizing digital voice assistant technology. Currently, Harison Hotel has a target market for family and business needs, especially for weddings, social gatherings, and other business needs. To expand the target market by targeting Generation Z, improvements are required in terms of the technology and application of hotel services. The implications of this study suggest that Harison Hotels could benefit from implementing Digital Voice Assistant (DVA) technology to attract and cater to Generation Z customers. By integrating DVA into their services, hotels can expand their target market beyond their current focus on families and business clients. This technological upgrade could enhance the hotel's appeal to younger guests, potentially increasing bookings for leisure stays and small-scale events. Additionally, incorporating DVA technology may improve overall service efficiency and guest satisfaction, which could lead to positive reviews and increased brand loyalty among Generation Z travelers. However, this implementation would require careful planning, staff training, and potentially significant investment in infrastructure to ensure the seamless integration of DVA technology into existing hotel operations.

The findings from the study on Generation Z hotel staff's readiness to accept Digital Voice Assistant (DVA) technology align well with potential advancements in the hospitality industry, particularly in Indonesia. This connection can be elaborated as follows.

1. **Market expansion:** The study's recommendation for the Harison Hotel to expand its target market to include Generation Z aligns with the potential of DVAs to revolutionize the hospitality industry. By implementing DVA technology, Harison Hotel can attract and cater to tech-savvy Gen Z consumers, diversifying its current focus on family and business needs.
2. **Enhanced guest experiences:** The potential of DVAs to offer personalized, conversational, and responsive interactions directly supports this study's suggestion to improve technology and hotel service applications. By integrating DVAs, Harison hotels can provide enhanced guest experiences that are likely to appeal to Generation Z consumers.
3. **Staff adoption and efficiency:** This study's finding that Gen Z hotel staff are ready to accept and use DVA technology for daily needs and work support indicates a smooth transition in implementing these advancements. This readiness can lead to improved operational efficiency, as mentioned in the potential impact of DVAs on the hospitality sector.
4. **Competitive advantage:** By leveraging DVA technology to target Generation Z, Harison Hotel can position itself at the forefront of the shift towards voice-controlled technology in the Indonesian hospitality sector. This aligns with the potential reshaping of customer service standards, mentioned in the first passage.
5. **Increased engagement and sales:** The study's recommendation to utilize DVA technology to expand the target market to Generation Z corresponds to the potential for DVAs to drive increased engagement and sales in hotels, as mentioned in the first passage.

By implementing these technological advancements and targeting Generation Z, Harison hotels can align themselves with broader trends in the Indonesian hospitality industry, potentially revolutionizing its services and market position.

Interestingly, while Gen Z showed positive attitudes towards AI-powered assistants, there were generational differences in acceptance. For hotel staff and operations, voice-based AI devices are transforming human-computer interactions and creating new touchpoints (Buhalis & Moldavska, 2022). Despite the potential benefits of in-room voice assistants in automating workflows and enhancing guest experiences, their adoption by hotels has been limited. However, Buhalis and Moldavska (2021) found that the benefits of voice-based digital assistants in hospitality outweigh the drawbacks for both hotels and guests, suggesting their potential for wider implementation in the future. In conclusion, DVAs present significant opportunities to engage Gen Z consumers and improve hotel operations. However, their successful integration

requires understanding generational differences, addressing privacy concerns, and leveraging technology to create personalized, enjoyable experiences that align with Gen Z's preferences and expectations in the hospitality industry.

4. Conclusion and Recommendation

The conclusion of this study indicates that Generation Z hotel staff members demonstrate readiness for Digital Voice Assistant technology in terms of Perceived Ease of Use, Perceived Usefulness, and Attitude Toward Use. This readiness among Generation Z hotel staff for digital voice assistance technology suggests potential benefits for hotels implementing this technology in their operations. Positive perceptions regarding ease of use, usefulness, and attitude toward use indicate that Generation Z employees are likely to adopt and effectively utilize this technology in their work environment. This readiness could potentially lead to improved operational efficiency, enhanced guest experiences, and provide hotels with a competitive advantage in attracting and retaining younger staff members who are comfortable with digital innovations. To further explore this topic, future research could examine the impact of Digital Voice Assistant technology on guest experiences and preferences, particularly among different age groups and market segments.

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