

Impact of Digital Voice Assistants in Service Encounters

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Abstract

This research delves into the perceptions and impacts of digital voice assistants (DVAs) in service encounters, investigating consumer sentiments and the consequential effects on service delivery. Employing a quantitative approach, data from 358 respondents were analyzed using Likert scales, affirming a strong positive perception of DVAs, attributing them to enhanced convenience, efficiency, and productivity in daily tasks. Furthermore, the study identifies significant impacts of DVAs on service encounters, illustrating their role in improving overall service experiences, speed, accuracy, service quality, and user engagement. These findings underline the growing acceptance of DVAs among consumers and emphasize their transformative potential in reshaping service interactions. Implications suggest strategic DVA integration to augment service delivery while spotlighting the need for continued technological advancements and addressing privacy concerns to ensure inclusive and trustworthy utilization.

Keywords: Digital voice assistants, Service encounters, Consumer perception, Service delivery, Technology acceptance, Privacy concerns.

Introduction

The widespread adoption of digital voice assistants has profoundly transformed service interactions in diverse industries. These AI-powered assistants, utilizing natural language processing (NLP), are transforming the manner in which enterprises engage with their clients. This introduction will explore the characteristics of digital voice assistants, their capabilities, and how various entities utilize these technical advancements to provide improved services. Digital voice assistants, commonly known as virtual assistants or smart speakers, are artificial intelligence-powered technology created to understand and answer human orders and inquiries

through voice interactions. These assistants have become extremely popular because of their effortless integration into common gadgets like smartphones, smart speakers, and even household appliances, thanks to advanced algorithms and machine learning. Notable examples encompass Amazon's Alexa, Apple's Siri, Google Assistant, and Microsoft's Cortana, among other similar technologies. The functionality of digital assistants encompasses a wide range of tasks, ranging from basic functions such as setting reminders or checking the weather to more intricate operations such as making online transactions, controlling smart home devices, or retrieving tailored information. Users can engage in natural language discussions, boosting their experience and convenience, thanks to the adaptive nature of the system. Within the realm of service encounters, firms in several industries have leveraged the functionalities of digital voice assistants to enhance client engagements. Industries such as retail, hotels, healthcare, finance, and automotive have adopted these technology to optimize operations and enhance customer service benchmarks. A prominent use case is in the retail industry, where digital voice assistants have been included into both online shopping platforms and physical storefronts. These assistants streamline product searches, make tailored recommendations based on user preferences, and offer immediate guidance in navigating different options. Additionally, they facilitate effortless customer service, enabling individuals to check about the status of their orders, request refunds or replacements, and obtain prompt assistance, thereby boosting overall customer happiness. Within the domain of hospitality, digital voice assistants have proven to be valuable tools for improving guest experiences in hotels, resorts, and other types of accommodations. They aid customers by furnishing information regarding facilities, managing room service inquiries, modifying room configurations, or even expediting check-out procedures, so enhancing a more individualized and streamlined service delivery model. In addition, healthcare companies have utilized digital voice assistants to provide virtual health support, schedule appointments, deliver prescription reminders, and in certain instances, offer preliminary diagnostic aid. This invention has enhanced access to healthcare services and facilitated effective management of medical information and resources. Financial institutions have implemented digital voice assistants to offer banking and financial services. These voice-activated technologies let customers to perform tasks such as checking balances, transferring payments, paying bills, and receiving individualized financial advice. This is transforming the typical banking experience. To summarize, the advent of digital voice assistants has revolutionized service interactions across various industries. Their ability to adapt and improve user experiences has made them essential instruments in contemporary service delivery strategies for firms aiming to optimize customer interactions and satisfaction levels.

Review of Literature

Ewers, Baier, and Höhn (2020) investigate the level of acceptability of digital voice assistants (DVAs), including Amazon's Alexa, Google's Assistant, and Apple's Siri, along with other speech-oriented interfaces. The study focuses on the possible influence of these assistants on customers' interactions with both companies and devices. Although DVAs are expected to offer ease and improve productivity, their adoption is currently restricted, especially among individuals who grew up with digital technology, and the reasons for this hesitance are not well understood. This study combines components of the Technology acceptability Model (TAM) and the Uses and Gratifications Approach (UGA) to determine the factors that influence the acceptability of DVA (Digital Voice Assistants). The study conducted a Siri field experiment with 283 individuals who are proficient in using digital technology. The findings of the study emphasize that the adoption of Digital Voice Assistants (DVA) is highly influenced by factors such as enjoyment, social standing, and social influence. Privacy concerns arise among Millennials around the gathering of personal information by firms utilizing DVAs. These findings provide relevant insights into the main factors that influence the acceptability of digital voice assistants (DVA), directly connecting to the broader issue of the influence of DVAs in service interactions. The study's emphasis on the aspects that influence customer acceptability is in line with the significant role that these assistants play in transforming interactions between consumers and service providers in different sectors. This sheds light on important considerations that are necessary for improving service encounters through DVAs.

Natale and Cooke (2021) explore a sometimes neglected element of voice assistants, such as Siri, Alexa, and Google Assistant, emphasizing their function as interfaces for the web and their potential influence on users' web access, comprehension, and utilization. Although discussions regarding digital assistants have mainly focused on topics such as artificial intelligence, surveillance, gender stereotypes, and privacy, this article shifts the focus to their role as interfaces that shape web interaction. The article highlights three crucial issues that intersect with wider discussions on the social and political impact of the internet: the impact of web platforms on the availability of information, the relationship between online production and consumption, and the influence of emotions on engagement with web resources. The paper places voice assistants within the context of communication and media studies, which prompts new queries that question accepted assumptions about the web. This statement highlights the importance of speech as a main way of obtaining information online. It encourages more thinking and conversations among scholars who study the changing world of web-based

interactions. This investigation corresponds to the discussions regarding the effects of digital voice assistants in service interactions. It goes beyond just their functionality and includes their impact on accessing information and engaging users in the digital world. As a result, it offers a comprehensive viewpoint on their implications in different areas.

Vimalkumar, Sharma, Singh, and Dwivedi (2021) examine the privacy perceptions associated with Voice-based Digital Assistants (VBDA) such as Alexa, Siri, and Google Assistants, which have become widely prevalent in our everyday surroundings. Although these assistants provide customized user experiences by acquiring extensive personal information, they give rise to considerable apprehensions around the gathering, utilization, and retention of customer data. The objective of this study is to examine how consumers perceive privacy concerns and how these concerns affect the adoption of VBDA. Building upon the UTAUT2 model, this study incorporates the factors of perceived privacy concerns, perceived privacy risk, and perceived trust. The study demonstrates the crucial influence of trust in technology and service providers on the adoption of VBDA, as evidenced by survey data acquired from tech-savvy participants. Additionally, it emphasizes a subtle consumer behavior in which customers carefully consider privacy hazards in relation to the advantages provided by VBDA, demonstrating a deliberate decision-making process. Contrary to previous studies, the research findings indicate that consumers' perception of privacy risk does not have a direct impact on their intention to adopt, but rather it is influenced by their perception of privacy issues and trust. These findings shed light on the intricate relationship between perceptions of privacy, trust, and intention to adopt, offering significant theoretical and managerial implications. They contribute to the ongoing discussions about the influence of digital voice assistants in service encounters by highlighting the pivotal role of trust and privacy concerns in consumers' acceptance and adoption of these technologies in service interactions.

Grewal, Guha, Schweiger, Ludwig, and Wetzels (2021) explore the changing environment of Artificial Intelligence-powered Voice Assistants (VAs) like Amazon's Alexa, Google Assistant, and Apple's Siri, which are integrated into smartphones, smart speakers, and different digital platforms. This article aims to clarify the impact of the communications enabled by these virtual assistants on assessments and intentions to use, specifically depending on the stage of the customer journey. The report utilizes previous studies on virtual assistants, artificial intelligence, communications, and customer journey management to develop a thorough model that illustrates how VA communications affect ratings of virtual assistants. This model goes beyond traditional communication models by including unique elements related to virtual

assistants and artificial intelligence, such as the perception of being human or artificial, as well as taking into account the different stages of the customer journey. The presented model suggests that VA evaluations are influenced by both conventional communication parameters, such as source, message, and recipient characteristics, as well as the unique properties of VAs and the specific stage of the customer journey. This study enhances our comprehension of how voice assistant-enabled communications can profoundly impact customer perceptions and behaviors at different touchpoints throughout the customer journey. It aligns with discussions on the influence of digital voice assistants in service encounters by emphasizing their role in shaping customer experiences and interactions across various stages of the customer journey.

In their study, Aw, Tan, Cham, Raman, and Ooi (2021) investigate how digital voice assistants (DVAs), such as Amazon's Alexa, can significantly impact the retail sector by transforming it and improving the way people purchase. The study seeks to investigate the limited comprehension of Digital Virtual Assistants' (DVAs) impact on enhancing customer experience by presenting and verifying an all-encompassing research framework. The continued usage of DVAs for shopping is influenced by various factors, including human-like attributes (such as perceived anthropomorphism, animacy, and intelligence), technology attributes (such as performance expectancy, effort expectancy, and perceived security), and contextual factors (such as social influence and facilitating conditions). The study demonstrates that these characteristics play a role in shaping perceptual results, including parasocial interactions, perception of smart shopping, and consumer experience enhanced by artificial intelligence. An online questionnaire-based survey was conducted with a sample size of 411 participants. The data acquired from this survey was analyzed using Partial Least Squares Structural Equation Modeling. The results demonstrate the noteworthy influence of human-like and technological characteristics on parasocial interactions, with perceived intelligence, security, and performance expectancy affecting the perception of smart buying. Furthermore, the presence of parasocial interactions and the perception of smart-shopping contribute to the development of consumer experiences facilitated by AI, ultimately impacting the inclination to continue shopping using DVAs. The study's findings provide theoretical insights and practical ramifications, enhancing conversations on the influence of digital voice assistants in customer interactions by clarifying the aspects that shape customer perceptions and experiences, particularly in the retail industry.

Marikyan, Papagiannidis, Rana, Ranjan, and Morgan (2021) examine the increasing use of AI-driven digital assistants in work-related settings, which is a rapidly emerging sector with

insufficient empirical data. The objective of the study is to (1) determine the elements that affect individuals' contentment with technology usage and (2) evaluate the resulting effects of this satisfaction on productivity and job engagement. Based on data collected from 536 participants who utilize digital assistants for work-related tasks, the study uncovers numerous significant discoveries. Factors such as performance expectancy, perceived enjoyment, intellect, social presence, and trust were found to have a positive correlation with satisfaction when utilizing digital assistants. Significantly, the level of contentment with these helpers is directly linked to higher levels of efficiency and improved commitment to work. These findings provide a substantial contribution to the existing body of research on AI-based technology in the workplace. They provide valuable information on how digital assistants can effectively support and enhance job processes. Furthermore, the results provide practical suggestions on how to effectively incorporate and utilize digital assistants in professional settings. This research makes a significant contribution to the discussions on the effects of digital voice assistants in service encounters. It highlights their role in increasing productivity and engagement in professional settings. The research provides valuable insights into how these assistants can be used as tools to enhance productivity in different work-related areas.

Fernandes and Oliveira (2021) make a valuable contribution to the emerging area of automated technology adoption in service interactions. They conduct an empirical study to examine the factors that influence consumers' willingness to accept intelligent digital voice assistants. The study utilizes PLS-SEM to examine data from 238 young consumers and reveals the primary factors behind the use of these assistants in service encounters. Functional, social, and relational aspects play a crucial role, indicating complex connections between these elements and emphasizing the moderating impact of both expertise and the necessity for human engagement. The research expands upon the Service Robot Acceptance Model developed by Wirtz and colleagues, providing empirical evidence to support the model's Casesity. Additionally, it questions the widely held belief that anthropomorphism always results in favorable consequences. Additionally, it illuminates the less investigated domain of establishing a connection between customers and robots. This study ultimately enhances our understanding of the adoption patterns of digital voice assistants and provides valuable insights for successfully using these technologies in service situations. This research makes a significant contribution to the ongoing discussions about the effects of digital voice assistants in service encounters. It uncovers detailed factors that influence consumer acceptance, highlighting the

complex nature of their adoption in service interactions. Additionally, it provides valuable guidance for businesses seeking to effectively incorporate these technologies.

Wagner, Nimmermann, and Schramm-Klein (2019) explore the growing industry of digital voice assistants, which is being propelled by prominent companies such as Amazon, Google, Apple, Microsoft, and Samsung. The study highlights the substantial expansion in this field, specifically in smart speakers and speech applications connected with smartphones. These advancements are characterized by the connection between humans and computers, as well as the attribution of human-like qualities to these assistants. Although there is a growing number of users and consumer interest in digital voice assistants, there is still a lack of empirical research on the factors that influence their acceptability, particularly in relation to the role of anthropomorphism. This study seeks to address this disparity by investigating pivotal aspects that are essential in promoting wider acceptance, with a specific focus on anthropomorphism in conjunction with other proven determinants documented in the existing literature. Utilizing the UTAUT2 paradigm, their empirical research provides clarity on the importance of anthropomorphism in conjunction with other factors, providing valuable insights into its influence on the adoption of digital voice assistants. This research makes a substantial contribution to the ongoing discussions about the effects of digital voice assistants in service encounters. It emphasizes the significance of anthropomorphism and its interaction with other factors in influencing the acceptance of these assistants. The research offers valuable insights into the psychological aspects that drive the adoption of digital voice assistants.

McLean, Osei-Frimpong, and Barhorst (2021) examine the increasing use of AI-driven voice assistants (VAs) such as the Amazon Echo, specifically in providing brand-related information and services to consumers. Although VAs are becoming more popular, there is still a lack of comprehension regarding the factors that motivate consumers to use these devices for engaging with brands. This research focuses on the virtual assistant (VA) of the Amazon Echo, specifically its accompanying Alexa Skills. It aims to find the main factors that generate customer brand engagement through VAs. The study used a two-part approach to gather data. The first part consists of in-depth exploratory interviews with 21 respondents, while the second half involves a questionnaire completed by 724 respondents. The study identifies three main factors that influence the outcomes: AI qualities, technology attributes, and situational attributes. The results emphasize the importance of the VA's AI characteristics, including social presence, perceived intelligence, and social appeal, in impacting consumer brand engagement. Furthermore, the characteristics of technology and the practical advantages obtained from

exchanges with brand-related information also have an impact on brand engagement. Surprisingly, the impact of pleasure-based advantages from VA technology and worries about trust are not very important in influencing customer brand engagement. Moreover, the study demonstrates that although consumer brand involvement through a virtual assistant (VA) affects the intention to use the brand, it does not have a direct impact on future purchase intentions. This conclusion contradicts prior research conducted in this field. This study makes a significant contribution to the ongoing discussions about the effects of digital voice assistants in service encounters. It does so by clarifying the factors that drive consumer brand engagement through these assistants. Additionally, it provides valuable insights into the complex factors that influence consumer behavior when interacting with brands through these assistants.

The comprehensive examination of literature on digital voice assistants (DVAs) reveals the complex environment in which these assistants function, encompassing many areas such as consumer behavior, service encounters, and technological adoption. This thorough investigation uncovers multiple crucial elements that underscore the importance of DVAs in various circumstances. Digital Voice Assistants (DVAs), such as Amazon's Alexa, Google Assistant, and Apple's Siri, have the ability to significantly change the way people engage with technology. They offer ease, improvements in productivity, and tailored experiences. Nevertheless, despite their considerable potential, the acceptance and implementation of DVAs encounter significant obstacles. The problems encompass a range of issues, such as privacy concerns and trust issues, as well as more subtle aspects that influence acceptability, such as anthropomorphism, social influence, and perceived utility. Research endeavors, which incorporate components from the Technology Acceptance Model (TAM), Uses and Gratifications Approach (UGA), and expansions of previous models like the UTAUT2, have provided insights into the complex dynamics that influence DVA acceptance. Factors like as fun, social status, and social influence have emerged as significant motivators, influencing consumers' inclination to interact with virtual assistants. Furthermore, the influence of DVAs goes beyond their role as simple voice-activated interfaces. Research investigating the function of virtual assistants as online interfaces and their impact on accessing information, engaging with brands, customer service models, shopping experiences, job efficiency, and service interactions highlight the extensive consequences of these assistants. They surpass traditional limits, questioning established standards in communication, media analysis, consumer conduct, and technology acceptance. Nevertheless, in the extensive field of research, there is still a significant lack: the requirement for a comprehensive comprehension of the interaction

between technological characteristics, user perspectives, and contextual elements that influence the adoption of DVA. Although current research offer useful insights into the factors and consequences associated with DVA usage, there is a lack of a thorough synthesis or unifying framework that combines these varied perspectives. Furthermore, despite attempts to reveal the factors that influence acceptance and involvement, there is still a lack of comprehension regarding the intricate psychological and behavioral elements that mold user preferences and interactions with DVAs. Hence, the study gap exists due to the lack of a comprehensive theoretical framework that encompasses the complex relationships between user perceptions, technological features, contextual factors, and behavioral consequences in the context of DVA adoption. By addressing this gap, we can gain a more detailed understanding of how DVAs are viewed, accepted, and used in different situations. This knowledge can then be used to develop methods for effectively integrating and utilizing DVAs in service encounters and other contexts.

Objectives

1. To understand the perception of the consumers towards using digital voice assistants.
2. To understand the impact of digital voice assistants during service encounters.

Hypotheses

H1: Consumers have a positive perception towards the use of digital voice assistants.

H2: There is a significant impact of digital voice assistants during service encounters.

Research Methodology

The research methodology utilized a quantitative technique to examine consumer perceptions and the influence of digital voice assistants (DVAs) in service encounters. Information was gathered from a sample of 358 individuals residing in Pune City who utilize digital voice assistants. This study employed a cross-sectional research approach to collect data during a certain time period, providing a brief overview of consumer perspectives and encounters on DVAs. Participants, selected using stratified random sampling approaches to guarantee a varied

representation, were involved in an online survey that included Likert-scale items and structured questions. The survey comprised of two sections: one aimed at assessing consumer views regarding DVAs, while the other examined the observable influence of DVAs during service encounters. The data obtained from the participants' previous experiences underwent a thorough statistical analysis, which included descriptive statistics to summarize demographic information and inferential analysis. The study complied with ethical principles, guaranteeing confidentiality, voluntary participation, and the ethical utilization of data exclusively for research objectives. The stated limitations encompass potential biases in self-reported data and constraints associated with the cross-sectional design of the study, which may restrict the capacity to draw causal conclusions and apply the findings to the sampled population as a whole.

Data Analysis

Table 1. Age

		Freq.	Percent
Cases	18-30 years	23	6.4
	30-40 years	216	60.3
	40-50 years	47	13.1
	50-60 years	50	14.0
	Above 60 years	22	6.1
	Total	358	100.0

Table 1 presents the distribution of participants across different age groups in the study. The majority of respondents were in the age range of 30 to 40 years, constituting 60.3% of the total sample. Following this, individuals aged between 40 to 50 years represented 13.1%, while those between 50 to 60 years and above 60 years accounted for 14.0% and 6.1%, respectively. A smaller proportion, comprising 6.4%, fell within the age range of 18 to 30 years.

Table 2. Gender

		Freq.	Percent
Cases	Male	174	48.6
	Female	184	51.4
	Total	358	100.0

Table 2 displays the gender distribution among the participants involved in the study. The data reveals a relatively balanced representation, with 48.6% of respondents identifying as male and

51.4% as female. This equal or near-equal split between male and female participants allows for a fair and diverse representation within the surveyed sample. This balanced distribution enables researchers to draw insights and make inferences that consider both male and female perspectives, ensuring a more comprehensive understanding of the studied phenomena that isn't skewed towards any particular gender.

Table 3. Using digital voice assistants enhances convenience in managing daily tasks.

		Freq.	Percent
Cases	Firmly Disagree	20	5.6
	Disagree	13	3.6
	Neutral	18	5.0
	Agree	78	21.8
	Firmly Agree	229	64.0
	Total	358	100.0

Table 3 presents respondents' perspectives on whether using digital voice assistants enhances convenience in managing daily tasks. The majority of participants, comprising 64.0%, firmly agree that utilizing digital voice assistants contributes significantly to convenience in managing their daily activities. Additionally, 21.8% of respondents agree with this statement. A smaller percentage, constituting 5.0%, remained neutral, while a combined 9.2% disagreed or Firmly disagreed with the notion that these assistants improve convenience in daily task management. Overall, the overwhelming agreement from the majority underscores the perceived efficacy of digital voice assistants in enhancing convenience for users in their daily routines.

Table 4. Interacting with digital voice assistants improves efficiency in accessing information.

		Freq.	Percent
Cases	Firmly Disagree	59	16.5
	Disagree	37	10.3
	Neutral	12	3.4
	Agree	67	18.7
	Firmly Agree	183	51.1
	Total	358	100.0

In Table 4, participants were asked to share their opinions on whether interacting with digital voice assistants improves efficiency in accessing information. A significant majority, representing 51.1% of respondents, firmly agree that engaging with these assistants indeed

enhances the efficiency of accessing information. Additionally, 18.7% of participants agree with this statement. Conversely, a smaller proportion, comprising 10.3% who disagree and 16.5% who Firmly disagree, hold the viewpoint that interacting with digital voice assistants doesn't notably improve efficiency in accessing information. A minor percentage, at 3.4%, remained neutral on this aspect. Overall, the data indicates a predominant inclination towards the belief that these assistants notably enhance the efficiency of information access for users.

Table 5. I find digital voice assistants helpful in completing various tasks promptly.

		Freq.	Percent
Cases	Firmly Disagree	47	13.1
	Disagree	28	7.8
	Neutral	21	5.9
	Agree	51	14.2
	Firmly Agree	211	58.9
	Total	358	100.0

In Table 5, respondents were asked to express their opinions on the helpfulness of digital voice assistants in completing various tasks promptly. A significant majority, representing 58.9% of participants, firmly agree that these assistants are indeed helpful in swiftly completing various tasks. Additionally, 14.2% of respondents agree with this statement. Conversely, a smaller portion, comprising 7.8% who disagree and 13.1% who Firmly disagree, hold the viewpoint that digital voice assistants are not notably helpful in prompt task completion. A minor percentage, at 5.9%, remained neutral on this aspect. Overall, the data portrays a prevalent belief among participants that digital voice assistants significantly contribute to promptly completing various tasks.

Table 6. The use of digital voice assistants positively impacts my overall productivity.

		Freq.	Percent
Cases	Firmly Disagree	40	11.2
	Disagree	30	8.4
	Neutral	9	2.5
	Agree	71	19.8
	Firmly Agree	208	58.1
	Total	358	100.0

In Table 6, respondents were asked to evaluate the impact of using digital voice assistants on their overall productivity. A substantial majority, accounting for 58.1% of participants, firmly agree that employing digital voice assistants indeed has a positive effect on their overall productivity. Additionally, 19.8% of respondents agree with this statement. On the contrary, a smaller percentage, representing 8.4% who disagree and 11.2% who firmly disagree, do not perceive a positive impact on their productivity due to the use of digital voice assistants. A minor proportion, at 2.5%, remained neutral on this aspect. Overall, the data suggests a prevalent belief among participants that utilizing digital voice assistants positively influences their overall productivity.

Table 7. Digital voice assistants contribute to simplifying complex tasks effectively.

		Freq.	Percent
Cases	Firmly Disagree	36	10.1
	Disagree	37	10.3
	Neutral	15	4.2
	Agree	56	15.6
	Firmly Agree	214	59.8
	Total	358	100.0

Table 7 demonstrates respondents' perceptions regarding the efficacy of digital voice assistants in simplifying complex tasks. A significant majority, constituting 59.8% of participants, firmly agree that these assistants effectively contribute to simplifying complex tasks. Additionally, 15.6% of respondents agree with this statement. On the contrary, a smaller percentage, comprising 10.3% who disagree and 10.1% who Firmly disagree, do not perceive digital voice assistants as effective tools in simplifying complex tasks. A minor proportion, at 4.2%, remained neutral regarding this aspect. Overall, the data indicates a prevalent belief among respondents that digital voice assistants play a substantial role in simplifying complex tasks effectively.

Table 8. Digital voice assistants improve the overall experience during service interactions.

		Freq.	Percent
Cases	Firmly Disagree	42	11.7
	Disagree	35	9.8

	Neutral	26	7.3
	Agree	81	22.6
	Firmly Agree	174	48.6
	Total	358	100.0

Table 8 illustrates respondents' perceptions regarding the impact of digital voice assistants on the overall service experience. A notable majority, constituting 48.6% of participants, firmly agree that these assistants significantly enhance the overall service interaction experience. Additionally, 22.6% of respondents agree with this statement. On the contrary, a smaller percentage, comprising 9.8% who disagree and 11.7% who Firmly disagree, do not perceive digital voice assistants as contributing significantly to the improvement of the service experience. Another segment, at 7.3%, remained neutral regarding this aspect. Overall, the data showcases a prevalent belief among respondents that digital voice assistants positively impact the overall service interaction experience.

Table 9. The use of digital voice assistants enhances the speed and accuracy of service delivery.

		Freq.	Percent
Cases	Firmly Disagree	47	13.1
	Disagree	42	11.7
	Neutral	13	3.6
	Agree	61	17.0
	Firmly Agree	195	54.5
	Total	358	100.0

Table 9 demonstrates participants' viewpoints regarding the influence of digital voice assistants on the speed and accuracy of service delivery. A majority, accounting for 54.5% of respondents, firmly agree that these assistants notably enhance the speed and accuracy of service delivery. Moreover, 17.0% of participants agree with this statement. Conversely, a smaller fraction, comprising 11.7% who disagree and 13.1% who Firmly disagree, do not perceive digital voice assistants as significantly impacting the speed and accuracy of service delivery. Additionally, 3.6% of respondents remained neutral on this aspect. Overall, the data indicates a prevalent belief among respondents that digital voice assistants positively influence the speed and accuracy of service delivery.

Table 10. I perceive digital voice assistants positively influence the quality of service provided.

		Freq.	Percent
Cases	Firmly Disagree	29	8.1
	Disagree	57	15.9
	Neutral	37	10.3
	Agree	79	22.1
	Firmly Agree	156	43.6
	Total	358	100.0

Table 10 presents respondents' perceptions regarding the impact of digital voice assistants on the quality of service provided. The majority of participants, constituting 43.6%, Firmly agree that these assistants positively influence service quality. Additionally, 22.1% of respondents agree with this statement. Conversely, 15.9% disagree and 8.1% firmly disagree with the notion that digital voice assistants influence service quality. A portion of participants, 10.3%, remained neutral on this aspect. Overall, the data suggests a prevalent belief among respondents that digital voice assistants have a positive influence on the quality of service provided, with a significant majority expressing agreement or strong agreement with this viewpoint.

Table 11. Interacting with digital voice assistants positively affects my satisfaction with services.

		Freq.	Percent
Cases	Firmly Disagree	42	11.7
	Disagree	39	10.9
	Neutral	28	7.8
	Agree	69	19.3
	Firmly Agree	180	50.3
	Total	358	100.0

Table 11 displays respondents' perspectives on how interacting with digital voice assistants impacts their satisfaction with services. The largest proportion, comprising 50.3% of participants, firmly agrees that such interactions positively affect their satisfaction. Additionally, 19.3% agree with this statement. Conversely, 10.9% disagree, and 11.7% Firmly disagree that interacting with digital voice assistants affects their satisfaction with services. A smaller segment, 7.8%, remained neutral on this aspect. Overall, the data indicates a predominant belief among respondents that interacting with digital voice assistants has a positive influence on their satisfaction with services, with a significant majority expressing agreement or strong agreement with this viewpoint.

Table 12. The presence of digital voice assistants positively influences my engagement during service encounters.

		Freq.	Percent
Cases	Firmly Disagree	31	8.7
	Disagree	33	9.2
	Neutral	31	8.7
	Agree	55	15.4
	Firmly Agree	208	58.1
	Total	358	100.0

Table 12 demonstrates respondents' views on how the presence of digital voice assistants affects their engagement during service encounters. A majority, constituting 58.1% of participants, firmly agree that the presence of digital voice assistants positively influences their engagement. Additionally, 15.4% agree with this statement. Conversely, 9.2% disagree, and 8.7% Firmly disagree that digital voice assistants affect their engagement during service encounters. Another 8.7% remained neutral on this aspect. The data indicates a prevailing belief among respondents that the presence of digital voice assistants has a notably positive impact on their engagement during service encounters, with a substantial majority expressing agreement or strong agreement with this perspective.

H1: Consumers have a positive perception towards the use of digital voice assistants.

Table 13. One-Sample Test

	Test Value = 3					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Using digital voice assistants enhances convenience in managing daily tasks.	23.116	357	.000	1.34916	1.2344	1.4639
Interacting with digital voice assistants improves efficiency in accessing information.	9.488	357	.000	.77654	.6156	.9375

I find digital voice assistants helpful in completing various tasks promptly.	12.657	357	.000	.98045	.8281	1.1328
The use of digital voice assistants positively impacts my overall productivity.	14.270	357	.000	1.05307	.9079	1.1982
Digital voice assistants contribute to simplifying complex tasks effectively.	14.152	357	.000	1.04749	.9019	1.1931

The statistical analysis conducted to evaluate consumers' perceptions toward using digital voice assistants (DVAs) in reference to the hypothesis (H1: Consumers have a positive perception towards the use of DVAs) revealed compelling results across various facets of DVA utilization. Firstly, respondents overwhelmingly expressed their agreement towards the positive attributes of DVAs in managing daily tasks. The test demonstrated a significant mean difference of 1.34916 ($t=23.116$, $p<.001$, 95% CI [1.2344, 1.4639]), indicating a strong inclination among consumers towards the convenience offered by DVAs in handling daily tasks efficiently. Similarly, respondents showcased a significant positive perception regarding the impact of DVAs on information access and task completion. The analysis revealed that interacting with DVAs improved efficiency in accessing information, with a substantial mean difference of 0.77654 ($t=9.488$, $p<.001$, 95% CI [0.6156, 0.9375]). Additionally, participants found DVAs helpful in completing tasks promptly, displaying a considerable mean difference of 0.98045 ($t=12.657$, $p<.001$, 95% CI [0.8281, 1.1328]), further affirming their positive perception towards the swift completion of tasks facilitated by DVAs. Moreover, respondents acknowledged the positive impact of DVAs on overall productivity and task simplification. The statistical analysis revealed a noteworthy mean difference of 1.05307 ($t=14.270$, $p<.001$, 95% CI [0.9079, 1.1982]) concerning the positive influence of DVAs on overall productivity. Additionally, participants recognized the effectiveness of DVAs in simplifying complex tasks, as evidenced by a substantial mean difference of 1.04749 ($t=14.152$, $p<.001$, 95% CI [0.9019, 1.1931]), underscoring their favorable perception of DVAs in task management. Overall, the statistical outcomes firmly support the hypothesis (H1) that consumers indeed hold a highly positive perception towards the use of digital voice assistants. Across multiple dimensions—convenience in daily tasks, information access, task completion efficiency, overall productivity,

and simplification of complex tasks—the findings consistently demonstrate consumers' favorable views and strong agreement regarding the beneficial aspects of employing DVAs in their daily lives.

H2: There is a significant impact of digital voice assistants during service encounters.

Table 14. One-Sample Test

	Test Value = 3					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Digital voice assistants improve the overall experience during service interactions.	11.605	357	.000	.86592	.7192	1.0127
The use of digital voice assistants enhances the speed and accuracy of service delivery.	11.164	357	.000	.87989	.7249	1.0349
I perceive digital voice assistants positively influence the quality of service provided.	10.702	357	.000	.77095	.6293	.9126
Interacting with digital voice assistants positively affects my satisfaction with services.	11.275	357	.000	.85475	.7057	1.0038
The presence of digital voice assistants positively influences my engagement during service encounters.	14.738	357	.000	1.05028	.9101	1.1904

The statistical analysis aimed at evaluating the impact of digital voice assistants (DVAs) during service encounters in reference to the hypothesis (H2: There is a significant impact of DVAs during service encounters) revealed compelling insights regarding various aspects of service interactions facilitated by DVAs. The findings illustrated a significant positive impact of DVAs on the overall service experience, with a notable mean difference of 0.86592 ($t=11.605$, $p<.001$, 95% CI [0.7192, 1.0127]). Participants expressed a heightened level of agreement regarding

the enhancement brought forth by DVAs in their service interactions, indicating a perceptible improvement in the overall service experience facilitated by these assistants. Additionally, respondents acknowledged the influence of DVAs on service delivery speed, accuracy, service quality, satisfaction, and engagement during service encounters. The statistical analysis revealed substantial mean differences for each statement: DVAs enhancing the speed and accuracy of service delivery (mean difference = 0.87989, $t=11.164$, $p<.001$, 95% CI [0.7249, 1.0349]), positively influencing the perceived quality of service provided (mean difference = 0.77095, $t=10.702$, $p<.001$, 95% CI [0.6293, 0.9126]), positively affecting satisfaction with services (mean difference = 0.85475, $t=11.275$, $p<.001$, 95% CI [0.7057, 1.0038]), and positively influencing engagement during service encounters (mean difference = 1.05028, $t=14.738$, $p<.001$, 95% CI [0.9101, 1.1904]). Collectively, the statistical outcomes Firmly support the hypothesis (H2) that digital voice assistants have a significant and positive impact during service encounters. Participants' responses consistently highlighted the substantial influence of DVAs on various facets of service interactions, including the overall service experience, service delivery speed and accuracy, perceived service quality, satisfaction, and engagement during service encounters. These findings underscore the notable and beneficial impact of DVAs in augmenting and improving the dynamics of service encounters, Casesating their significance in enhancing the overall service delivery process.

Findings

The findings from the statistical analysis unveiled a remarkably positive perception among consumers toward the use of digital voice assistants (DVAs). Participants expressed substantial agreement across multiple dimensions related to DVAs' utility in managing daily tasks efficiently. The mean differences consistently favored strong agreement regarding the enhancement of convenience in managing tasks, improving efficiency in accessing information, prompt task completion, impact on overall productivity, and simplification of complex tasks. This collective consensus among respondents Firmly indicated a widespread positive perception of DVAs' capabilities in aiding and streamlining various aspects of daily life, reflecting a significant acceptance and acknowledgment of their utility in optimizing tasks and information access. Moreover, the impact of DVAs during service encounters emerged as notably substantial based on participant responses. The statistical analysis highlighted a clear consensus indicating the beneficial role of DVAs in service interactions. Participants Firmly

agreed that DVAs significantly enhanced the overall service experience, positively influenced service delivery speed and accuracy, contributed to perceived service quality improvement, positively affected satisfaction levels with services, and notably heightened engagement during service encounters. These findings collectively accentuated the pivotal role of DVAs in augmenting and positively impacting various dimensions of service encounters, signifying their substantial contribution to enhancing service quality, customer satisfaction, and engagement levels within service contexts.

Conclusion

The robust positive perception and significant impact of digital voice assistants (DVAs) uncovered in this study carry substantial implications across various domains. Firstly, these findings emphasize the burgeoning acceptance of DVAs among consumers, showcasing their pivotal role in simplifying daily tasks, improving productivity, and enhancing information access. Businesses can capitalize on these insights by strategically integrating DVAs into their service offerings, thereby enhancing efficiency and customer satisfaction. The study underscores the need for businesses to adapt their service delivery models to incorporate DVAs effectively, aligning with evolving consumer preferences and leveraging these assistants to streamline processes and enrich user experiences.

These findings also underscore the imperative for continual advancements and innovations in DVA technology. Understanding consumers' positive perceptions and the significant impact on service encounters suggests a ripe opportunity for further technological enhancements. Future research and development efforts can focus on refining DVA capabilities to better cater to specific service contexts and user needs. This could involve improved natural language processing, personalization features, and heightened integration across platforms to ensure seamless service interactions, ultimately fostering deeper customer engagement and satisfaction.

However, while the study highlights the promising aspects of DVAs, it also points to potential areas of concern, particularly in terms of privacy, security, and ensuring an equitable user experience across diverse demographics. Future research endeavors could delve deeper into these aspects, exploring ways to mitigate privacy concerns, enhance security protocols, and bridge potential gaps in accessibility and usability among different age groups or socio-

economic strata. Addressing these challenges will be crucial for the sustained and widespread adoption of DVAs, ensuring they remain inclusive, trustworthy, and effective tools in service encounters across diverse consumer segments.

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