THE EFFECT OF AI-POWERED CHAT BOTS ON E-COMMERCE MARKETING CUSTOMER SATISFACTION

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ABSTRACT

Artificial intelligence (AI)-driven chatbots have revolutionised consumer interactions in e-commerce, with the ability to influence customer happiness and purchasing behaviour. Within the context on the Technology Acceptance Framework (TAM), this paper examines the impact of chatbot on customer satisfaction. Among the findings are the following: chatbots are employed in communication and information technologies; text-based chatbots are most frequently utilised because they can answer questions and dispel concerns; and the United States is the nation that uses chatbots the most. The introduction of voice-activated technology and the processing of natural languages (NLP) has contributed to the rapid rise in popularity of AI chatbots among enterprises. Chatbots can help businesses reduce time and money, obtain information, streamline operations, offer one-on-one support, boost productivity, and improve user experience.

Keywords: *AI-powered chatbots, customer satisfaction, e-commerce marketing, TAM, perceived ease of use, Customer Service Assistant.*

1. INTRODUCTION

1.1 Background of Study

Because e-commerce offers ease and a wide range of products, it has changed how consumers behave. However, in this digital age, customer service frequently lacks the human touch and can come across as impersonal and annoying. Artificial intelligence (AI)-driven chatbots have surfaced as a possible solution, providing real-time assistance, tailored suggestions, and automated transaction procedures. This study explores how these virtual assistants affect client happiness, an important indicator of e-commerce success. Globally, a great deal of research has been done on how to build a company that will satisfy its customers. According to Gartner, 81% of marketer's regard customer satisfaction as a crucial component of their industry's competitiveness.

According to PwC research, 59% of customers are unhappy with the service they received from businesses, and 17% of those customers have never returned to buy a good or service because of their negative experience.

Since customers' wants and needs have changed as technology has developed, it is critical for businesses to keep up with these developments. In the modern world, businesses can stay in constant online communication with their customers. It is important to highlight that all businesses, regardless of their industry, depend on satisfied consumers because this fosters customer loyalty and increases overall corporate profitability. To improve the bots'

functioning and intelligence, it uses four main parameters: Classifiers for text algorithms, NLP (Natural Language Processing), and artificial neural networks.

"The theory and development on computer systems capable to perform tasks which normally require human intelligence" is how Google defines artificial intelligence. With AI's immense potential, marketers have seized the opportunity to continuously benefit from it and incorporate it into their business wherever it can be done. Artificial intelligence has a massive impact on internet advertising. According to a Smart Insights analysis, of 100 senior marketers from different businesses, 55% of the companies are using AI in their marketing campaigns or had previously considered doing so. For what reason may it be the case?

Advertisers may examine enormous volumes of display data from social media, messaging applications, and the Web in a relatively brief period of time with artificially intelligent marketing (AIM). Additionally, the experiences they gain in a shorter amount of time will improve the implementation of campaigns for advertisers, and their return on investment, or ROI, will be faster. This allows businesses and advertisers to concentrate on other equally important tasks. The fact that 76% of customers want businesses to understand their needs and presumptions is another reason why AI showing efforts in 2021 are important. Artificial intelligence can help content marketers identify the particular demographic that makes up their target audience, allowing them to provide personalised experiences for customers.

Chatbot: Definition

A chatbot system can be simply described as an application that uses the Internet platform to simulate human-user discussions. This agent, which is a machine-like human counterpart, is always on hand to handle inquiries. The ability of this chatbot system to comprehend human inquiries, which are primarily text-based, and provide relevant responses is the foundation for its operation. Chatbots have been around for as long as computer science itself. It makes sense based on the straightforward test that one of the experts, Alan Turing, conducted in the late 1950s to determine whether the person speaking with was human.

The amazing thing about this examination is that it makes the equipment so perfect that it is difficult to distinguish between a human or a machine. Although it has been predicted since the 1950s, chatbot systems are still in the early stages of development and may eventually be able to converse about any topic. This trend of chatbots that can comprehend any subject might lead to a dialogue that continues until the desired outcome is reached. Researchers and experts have worked hard to adapt various behavioural patterns in an effort to attain efficiency. In this project, the chatbot system is taking into account text-based conversation between a human and a computer programme to process inquiries and provide logical results.
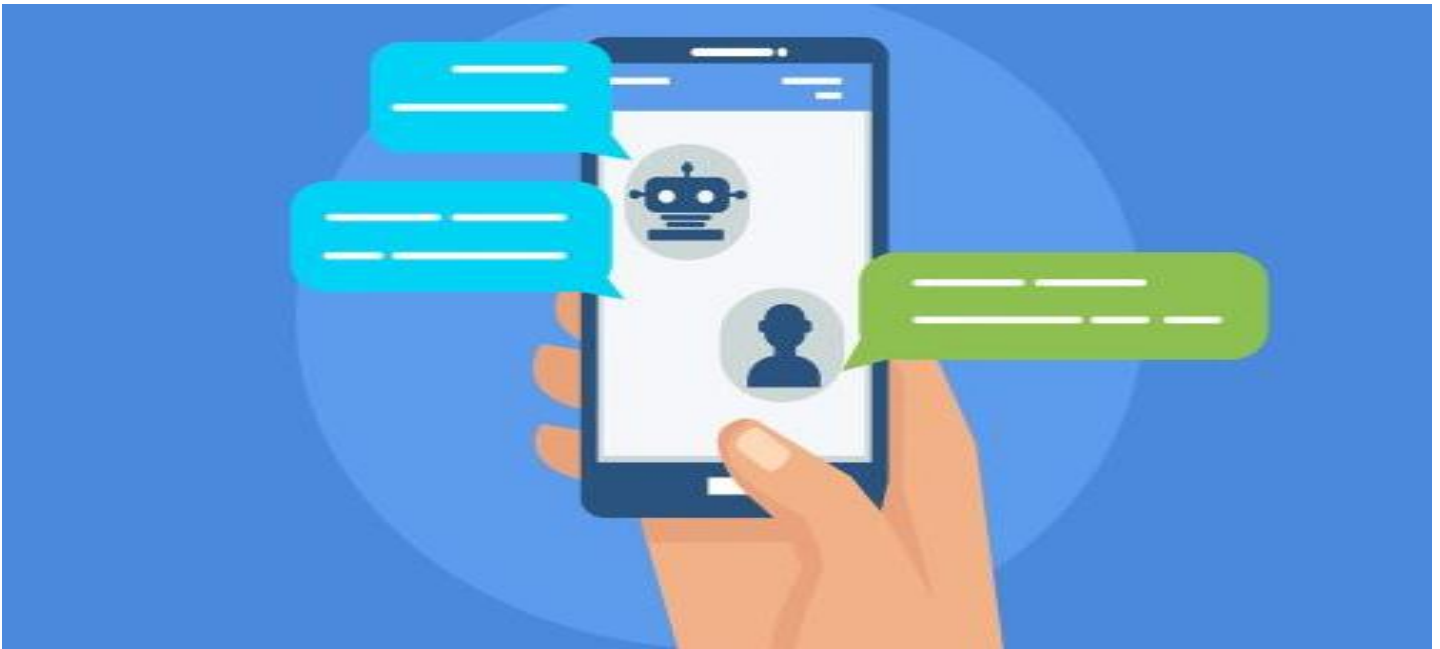
Literature Review

The e-commerce industry is changing quickly as customers want convenient and customised purchasing experiences. Research on the effects of AI-powered chatbots on customer satisfaction for e-commerce marketing is being spurred by the fact that these requests are being effectively met by these chatbots. This study of the literature looks at the benefits, drawbacks, and important variables affecting consumer satisfaction in the context of e-commerce when it comes to chatbot deployment. Regardless in time zone or location, chatbots provide round-the-clock support, improving customer experience and swiftly addressing difficulties. Sophisticated chatbots integrate user data and natural language processing to provide personalised product recommendations and cater to individual needs, increasing consumer satisfaction and engagement.

In the end, chatbots may optimise the checkout procedure and increase customer satisfaction by guiding customers through their buying journey, answering inquiries about items and status of orders, and facilitating secure transactions. Chatbots answer simple questions, freeing up real customer support representatives to handle more complicated ones. This lowers operating expenses and makes resource allocation more effective. Although chatbots are very good at factual tasks, they sometimes have trouble picking up on subtleties and emotions in human conversation, which can result in impersonal interactions and unhappy customers. Technical issues and incorrect interpretations of user inquiries can annoy clients and make their experience less enjoyable. The key to reducing these problems is to have an effective planning and testing process.

As chatbots are frequently designed to perform specific tasks, they might not be able to handle intricate questions or unforeseen circumstances. This may result in irate customers and the requirement for assistance from humans.

Natural language processing skills, intuitive design, and an easy-to-use interface are essential for satisfying user experiences. Gaining trust and improving customer happiness can be achieved through being transparent about data protection, chatbot restrictions, and human aid availability. Personalised interactions and effective service are made possible by a seamless connectivity with online stores and client data, which increases customer satisfaction.

Numerous scholarly articles and technology blogs have covered the use of chatbots in various fields. For instance, Emma Ojapuska examined variables that may influence the chatbot's ability to increase or decrease customer engagement in her paper. The study by Asbjorn Falstad and Petter Bae Brandtzeg discusses the main driving forces behind chatbot usage. The most current study on motivational variables found that productivity is a motivator, along with enjoyment and social and relational aspects. Conversational interfaces based on chatbots can be used to use people's natural language abilities, claim S. Valtolina et al. It also covers the application of chatbots in government, healthcare, and home automation.

The application of chatbots in transaction services and personalised communication is discussed by Darius Zumstein & Sophie Hundertmark. Since chatbots may gather and give data on users and their journeys through public transportation systems, it also discusses the use use chatbots in transportation services. In their work, Lakshman and Sulaiman created a strategy that uses natural language processing, or NLP, technology—which is also used in chatbots—to encourage senior citizens to use digital banking. In his research, Nishad Nawaz has illustrated how machine learning can be applied in the hiring process to minimise, if not completely replace, human interaction.

In 2019, Zafeer Shahid studied the elements that lead to the incorporation of AI with marketing through qualitative study and conversation with marketing specialists from different companies. His research demonstrated the advantages of using AI in marketing, even though technological compatibility has proven to be a significant obstacle.

Gijs Overgoor 2019 described how AI solutions for marketing problems can be developed using the structure known as CRISP-DM (Data Mining), or the Cross-Industrie Standardised Procedure for Data Mining. He used an intriguing Automatic scoring graphic for digital marketing to illustrate this point.

In their 2019 study, Ramya et al. examined a number of variables that affect customer behaviour. Products and companies that recognise and understand the elements that can help them develop a personalised marketing messaging strategy employing artificial intelligence. affect their clientele.

The impact for artificial intelligence on advertising tactics and customer behaviour has been the subject of a framework developed by Thomas Davenport et al. 2020. Their conclusion is that the influence of AI will be relatively limited unless and until it replaces human managers.

Bagozzi (1974) concluded from his research that the e-shopping behaviour of online buyers is a complex process. The customer makes purchasing decisions based on their family's needs and budget. As a result, they should maximise need compatibility and reduce transaction costs. Furthermore, it was discovered that competing offers and social norms had an impact on online purchase.

The study "Internet based online-Shoppers" by Donthu et al. (1999) shows that online consumers are more likely to be older, variety seekers, convenience-lovers, impulsive buyers, and less brand- and price-conscious. Direct advertising and marketing for domestic needs also have an impact on their behaviour.

Online shoppers' attitudes have shifted due to e-commerce's adaptability and wide range of offerings available with just a click, according to Jahng et al. (2000). In an e-commerce context, a total of 57 features of online goods and services have been researched; these features differ between e-commerce websites.

1. RESEARCH METHODOLOGY

1.1 OBJECTIVES

- To investigate how consumer behaviour in the online meal service industry is influenced by digital marketing.
- To research and comprehend the variables affecting customer behaviour in online advertising.
- To investigate whether respondents' personal characteristics influence their inclination for chatbots.

1.2 RESEARCH PHILOSOPHY

Selecting a suitable research philosophy is the first and most important stage in every research project. For this study, interpretivism is the chosen philosophy. Interpretivism emphasises how individuals differ from the physical phenomena they interpret. They are explored by interpretivists. People with varied cultural origins, different life experiences, and distinct temporal scopes construct and interpret distinct social realities. Interpretivists argue that attempts to create "laws" that hold to everyone, everywhere, miss important human insights. Indeed, in some fields like marketing, interpretation is most suitable for managerial and business studies. The adoption of interpretivism aims to promote better knowledge and give interpretations meaning.

1.3 THEORY DEVELOPMENT APPROACH

The three primary approaches to theory development are abductive, deductive, and inductive. The inductive approach will be more helpful because there isn't a lot of research on topics like chatbots and AI in marketing. Since the focus of this study's research was customers, understanding how they perceive their social setting is crucial. The inductive technique allows us to understand others.

1.4 Time Horizon

Cross-sectional studies, which can be conducted at any time, and longitudinal studies, which reflect occurrences over a certain period of time to analyse change and development, are the two main types of time frames. Owing to the need for this research to be conducted quickly, the cross-sectional method is appropriate for this study. The goal of the study is to ascertain current trends in this field, with a special focus on the influence of chatbots on customer behavior in a certain period of time.

1.5 TECHNIQUES AND PROCEDURES

1.6 DATA COLLECTION

1.6.1 PRIMARY DATA

The core information consists of those that were originally gathered and are therefore original in character. Regarding this investigation, information was gathered by questionnaire This is new information that was gathered from consumer conversations, interactions, and questionnaire completion.

1.6.2 SECONDARY DATA

The secondary data comes from a range of sources, including case studies, published study and review papers, publications, published statistics, and documents from governmental organisations.

SAMPLE DESIGN

Every respondent has used chatbots at least once, and judgmental sampling is the sample design utilised to describe this study.

SAMPLE SIZE

The poll was done with a sample size of 100 individuals who are all Indian residents and have either used or are consumers of the online service industry.

DATA COLLECTION INSTRUMENTS

A questionnaire is a tool used to collect responses to a set of formal questions using a word that the respondent must fill out on their own. For the purposes of this study, structured questions with six sections are employed.

The first portion includes demographic questions for introduction, and the other sections cover the identification of needs, information search, alternative evaluation, buy decision, and post-purchase behaviour.

DATA ANALYSIS TECHNIQUES
Percentage method, Chi-square analysis

HYPOTHESIS FORMULATED
- Null Hypothesis: The respondents' preferences for chatbots are not significantly influenced by their personal characteristics.
- Alternative Hypothesis: The respondents' preferences for chatbots are significantly influenced by their personal characteristics.
- Results and Analysis Demographics
- One hundred respondents completed the online Google forms that were used to conduct the poll. The three age groups that comprise the majority of the responders are GP1, GP2, and GP3. The 16–35 age group in GP1 is primarily made up of students and individuals just starting out in their careers.The majority of responders in GP 2's age group—36–50—are well-established wage earners. The two age groups will differ in their online purchasing preferences and shopping behaviours. GP 3's 50+ age group is made up of firmly established individuals who are close to retirement age or older.
- The information gathered will be quite helpful in examining how customers see chatbots. When there are several choices in the data, the results are shown as bar graphs. The data was presented as pie charts when respondents' replies are given in a decisive manner. The findings are shown as the responses from all respondents combined with the selections made for each age group.
- Table 1 displays the survey's overall statistics. Of the 100 responses, 47 percent are women and 53 percent are men. The respondents' age, occupation, monthly wages, place of residence, and educational attainment are all mixed together.

TABLE 1.

SNO	parameter	Characteristics	percentage	
1	gender	Male	53	
		Female	47	
2	age	16-35	61	GP1
		36-50	21	GP2
		>50	18	GP3

3	Occupation	Salaried / lob	32	
		Self-employed / business	9	
		Students	36	
		Unemployed	13	GP3
		Pensioners and homemakers	10	
4.	Level of education	High school / Diploma	11	
		Bachelor's degree	19	
		Master's degree	42	
		Doctorate	28	
5.	Income Level	< 10,000	10	
		< 50,000	09	
		< 1,00,000	32	
		<1,50,000	37	
		>1,50,000	12	

ADDRESS OF RESIDENCE

The dwelling is shown in Figure 4.1. We have divided the places where people live into three main categories: the metropolitan, urban, and countryside, regardless of their country.

The overall number of respondents, broken down by age and location of residence, is depicted as GP1, GP2, and GP3 in the accompanying figure.
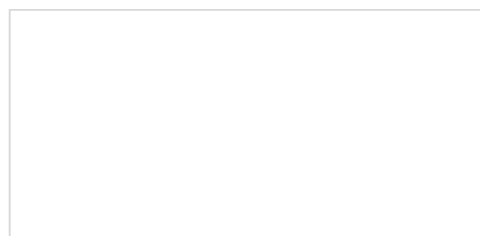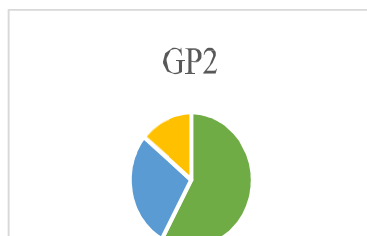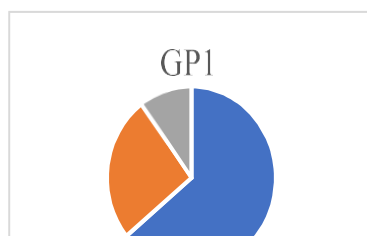
FIGURE 4.1:

GP-1 age group of 16 to 35, GP-2 age group of 36-50, GP-3 age group of above 50

FREQUENCY OF ONLINE PURCHASE

Figure 4.2 displays the amount of online purchases during the past year. Of the respondents, 47% often shop online. Remarkably, GP2 are more likely than GP1, the younger age group, to shop online. Nevertheless, 15% of consumers hardly ever shop online. The fact that even the GP3 regularly shop online shows that internet shopping has successfully reached all consumers, regardless of age.
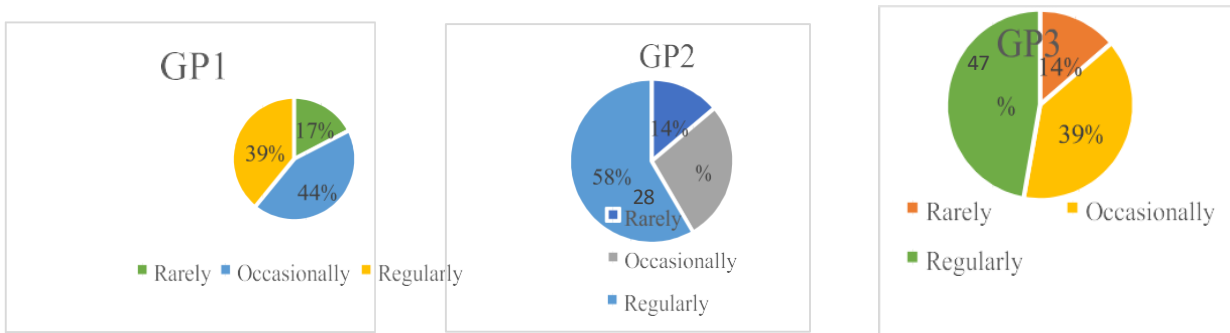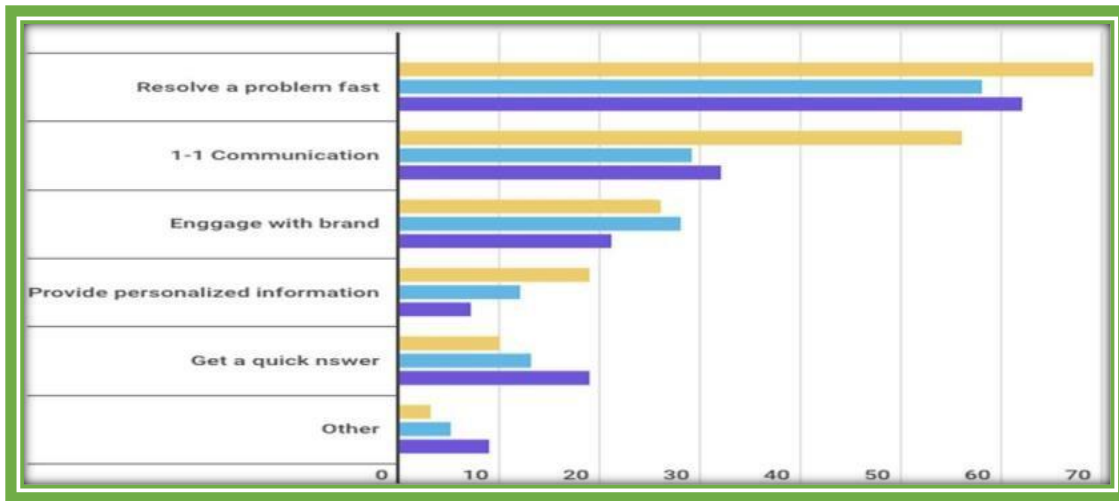

Figure 4.2:

The 16 to 35 age range, GP-2 is the 36–50 age group; GP-3 is the over-50 age group. Knowledge of Artificial Intelligence.

Regardless of age category, the majority of respondents have heard of AI, as seen in figure 4.3. Figure 4.1
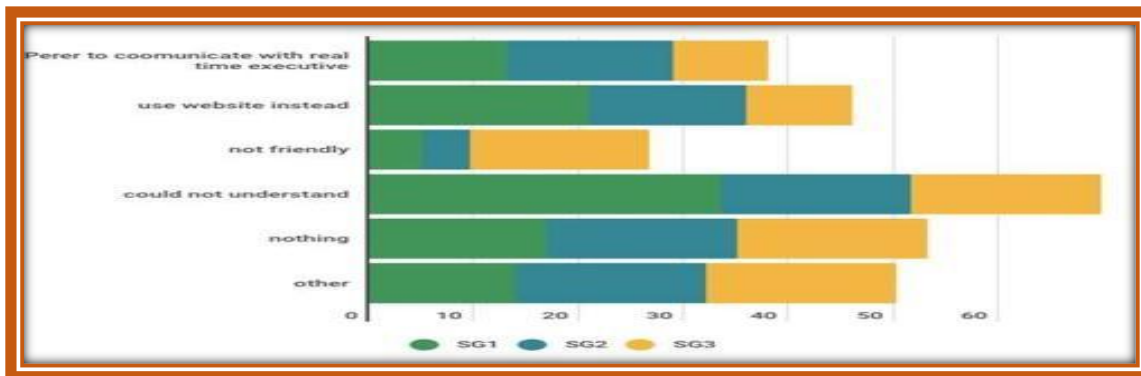
GRAPH 4.2

Graph 4.2 shows the factors that influence consumers' use of chatbots.

The most significant aspect is "resolving problem fast," which is followed by one-on-one conversation and brand engagement. On the other hand, giving clients individualised information and receiving prompt responses does not greatly encourage them. regardless of age group.

Benefits of chatbots

The numerous advantages and benefits that users of chatbots enjoy are shown in Figure 4.3. Customers find that employing chatbots rather than traditional support quickly resolves their concerns. This is followed by the advantages of fast responsiveness, convenience of use, 24/7 service, and pleasant customer experiences.

Graph 4.3
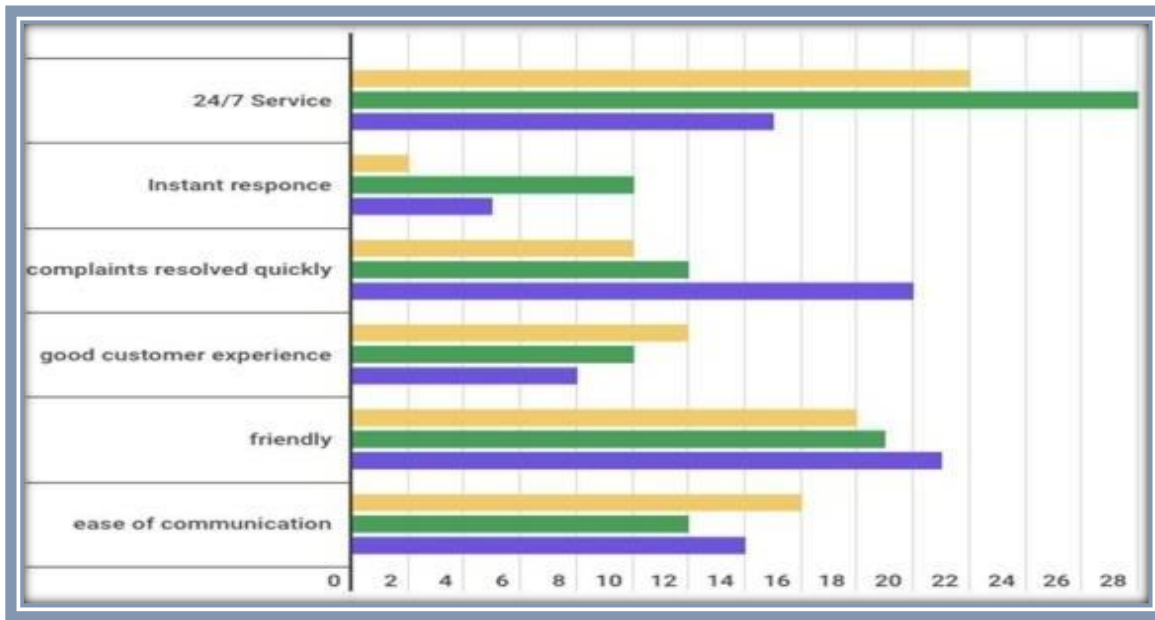
Factors resisting customers from usage of chatbots

Graph 4.4

The primary concern raised by respondents when asked what stops them from utilising chatbots was that "chatbots were unable to comprehend them." Unfriendly communication, the preference to utilise an online description to gain more information, and, lastly, the need to talk to a real person were other concerns.
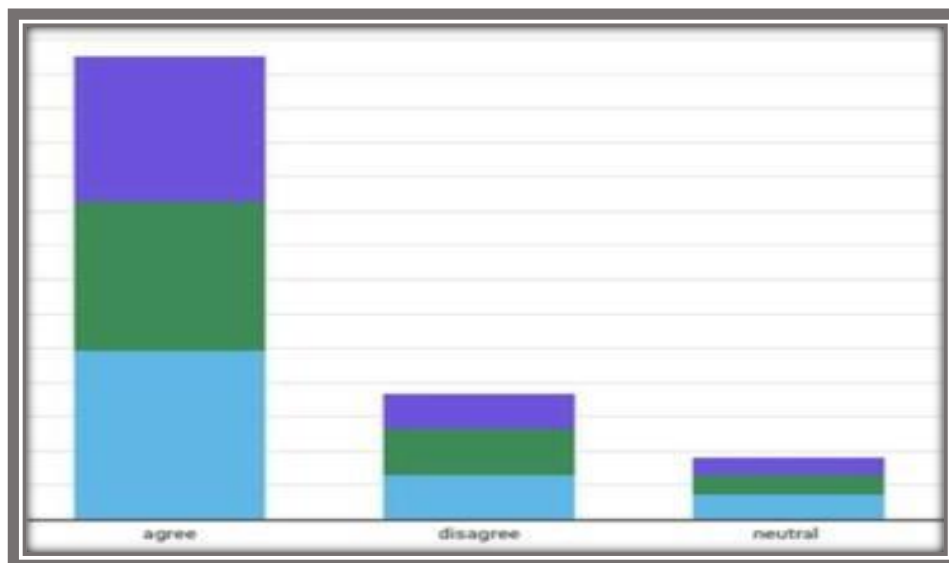
Respondents' inclination to divulge personal information for a customised experience

Since data is the 21st century's oil, respondents were asked if they would be willing to provide personal information for a more tailored experience. 63% of the GP1 group's respondents are unwilling to provide their data, while GP two participants are willing. neutral expression Surprisingly, 51% of respondents are unwilling to give their personal information, while 49% of respondents have agreed to do so. 72% of GP 3 group respondents said they would be happy to give data for a more customised purchasing experience.
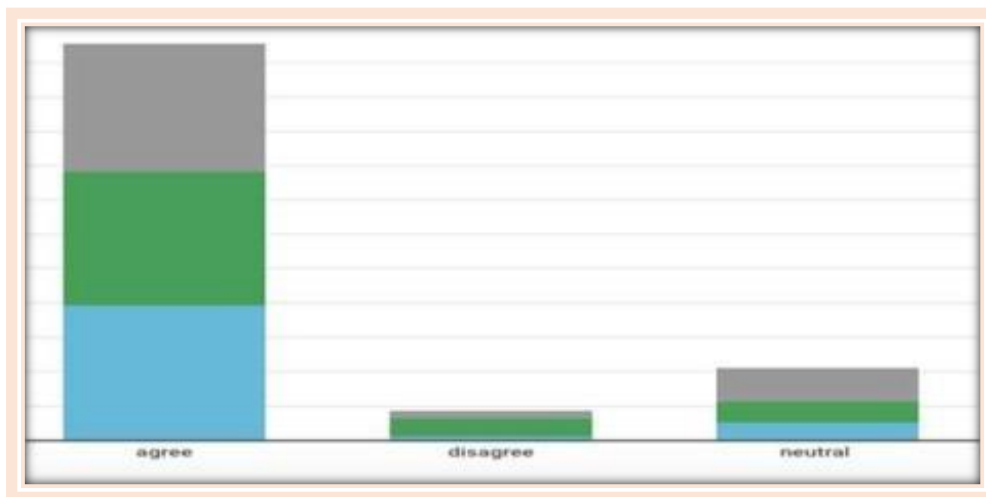
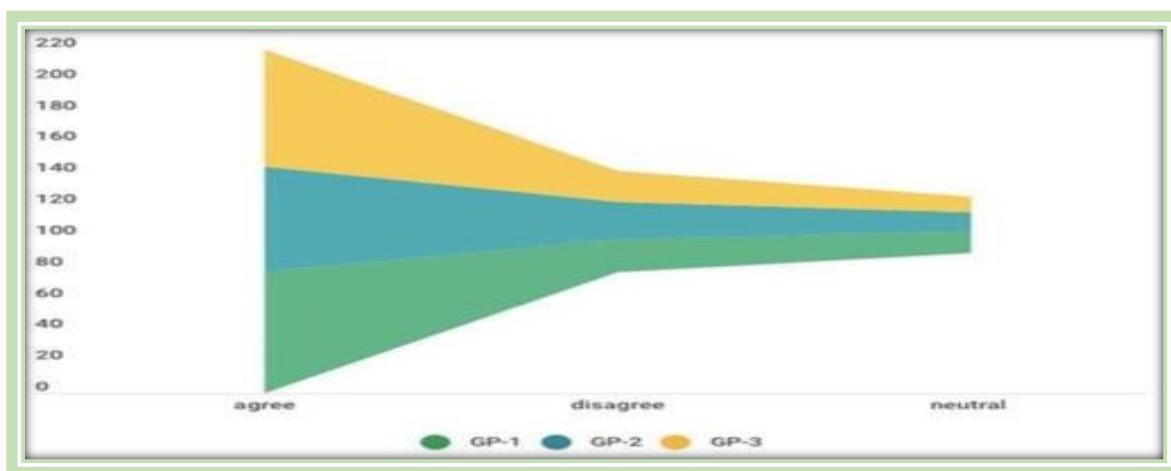Need – Recognition

Graph 4.5

As seen in the above graph, most respondents—regardless of age group—state that they would consider buying something when a chatbot sends them personalised messages and advertisements.

Problem solving

The majority of responders, as seen in the graph below, would be thrilled to use chatbots to solve their problems.

Graph 4.5

PURCHASE DESIRE

Graph 4.6

Based on the aforementioned graph, most participants report being activated if they receive a customised message from a virtual assistant that is associated with their interests. But a significant percentage of respondents don't get triggered when they get a notification from a chatbot.

INFORMATION SEARCH

Quicker Consequences

A majority of respondents—57%—agreed that chatbots help them experience the faster results of purchases, followed by 29% who declared themselves neutral and 14% who disagreed.

Finding a Product

In response to the question of whether chatbots help them identify items that are customised with their requires, 64% of those polled agreed, 14% disapproved, and 22% were unsure. While the GP-2 group stayed neutral and the GP-3 group expressed no view, the majority of responders from the GP-1 group agreed with the statement. group respondents equally agreed and disagreed

Frequent Purchase

The graph shows that 64% of respondents said they would be more likely to purchase items if they could just find ones that satisfied their needs and wants. Conversely, 22% and 9% of respondents, respectively, do not feel that this has an impact on them. The participants from the GP-3 & GP-2 groups were more impacted by the product's simplicity of finding than those from the GP-1 group.

Evaluation of Alternatives

The respondents' responses ranged widely between all three age group categories when asked whether they would be prepared to make comparisons and buy the goods if a chatbot provided them with a list of goods that were identical to the one they intended to buy and discussed the possible distinctions between them. For instance, 51% of respondents in the GP-1 group agreed to the statement, compared to 46% of respondents in the GP-2 group who disagreed and 64% of respondents in the GP-3 group who agreed.

PURCHASE DECISION OF RESPONDENTS TOWARDS FOOD SECTOR

**Attraction to firm with new age technologies and features**

While 21% of respondents took a neutral stance and 15% said they were completely uninterested in these new generation technologies, 64% of consumers find businesses that have embraced them, such as chatbots, to be appealing. Compared to the GP-3 group, the responders from the GP-1 and GP-2 groups are more drawn to these new technologies.
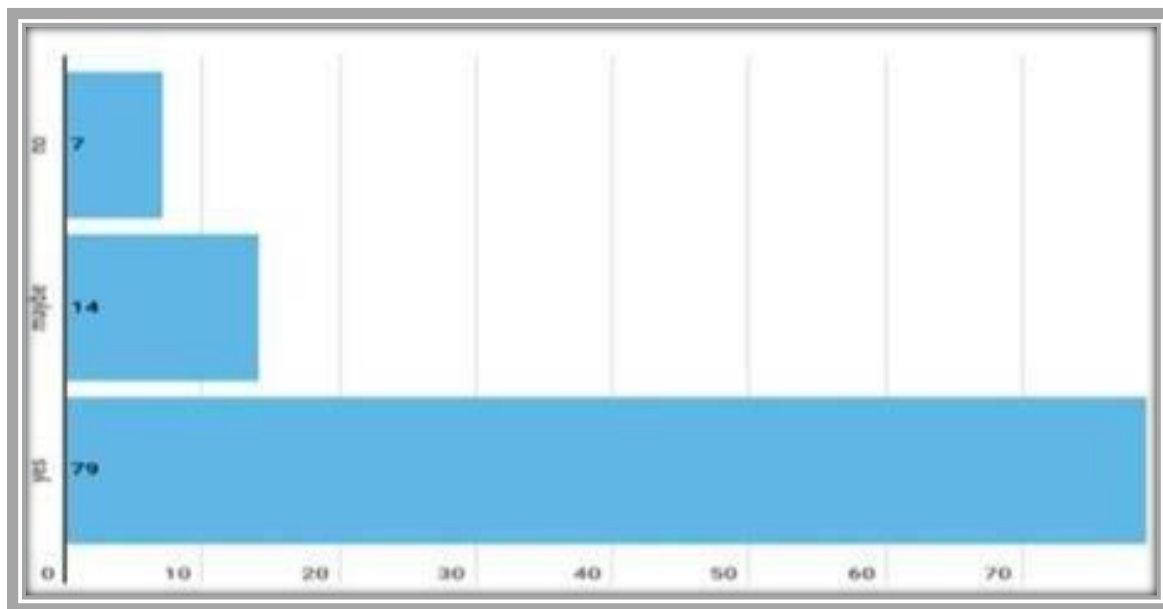
Graph 4.7

The Dynamics for Online Shopping Are Being Changed by New Technologies

The graph below shows that, while 87% of those polled from the GP-2 the group and 75% of participants to the GP-3 group concur with the statement, the majority of participants (95%) from a GP-1 group firmly think that the start of advances in technology like chat bots might alter the character of online shopping.
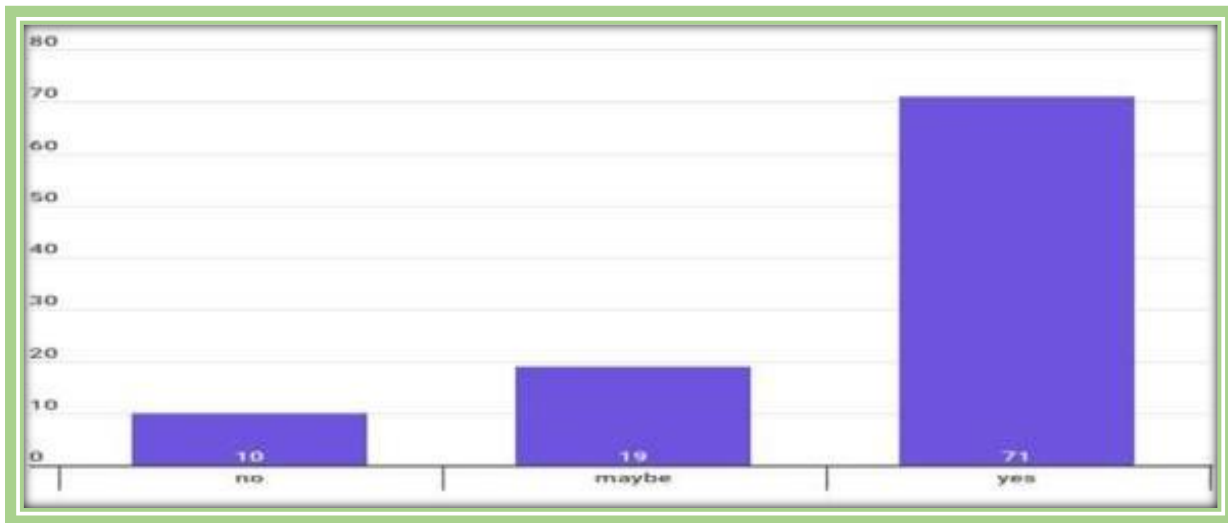
Graph 4.8

HYPOTHESIS TESTING

Chi-square analysis: individual characteristics and chatbot preferences Null Hypothesis: The respondents' preferences for chatbots are not significantly influenced by their personal characteristics.

Hypothesis 2: The respondents' personal characteristics significantly influence their preference for chatbots.

Personal factor	Chi square	p-value	Significant value
Gender	7.04	0.042	0.05
Marital status	1.0	0.041	0.05
Income level	7.67	0.049	0.05
Educational status	1.59	0.004	0.05
Place of residence	1.46	0.003	0.05
Occupational status	8.22	0.049	0.05

As mentioned, S-Significant (P-Value 0.05) As the following table shows, the alternative assumption is consistently accepted whereas the null assumption is consistently rejected. In light of this, we may conclude that people's individual preferences for chatbots are significantly influenced by their marital status, age, salary, schooling, place of residence, or employment status.

FINDINGS AND CONCLUSION

- According to the findings, chatbots are a powerful marketing tool that can influence customer behaviour at every stage of the decision-making process.
- Chatbots can help customers navigate their purchases more quickly and comfortably by making more relevant recommendations. They can also engage customers by sending them tailored advertisements and notifications.
- Chatbots particularly influence consumer behaviour prior to purchases. • Chatbots have an impact on discussions.
- Chatbots provide online advice to customers in the food industry regarding different products and any possible distinctions between them.
- Furthermore, this study showed that personalisation, interaction, and customer satisfaction are important elements that can affect a consumer's choice during the buying process.
- Consumers benefit from agreements that provide order revisions during the after-sale phase. Given the aforementioned results, an advertising-friendly structure is suggested.

CHALLENGES OF USING CHATBOTS

Even though chatbot technology has advanced significantly, there are still many obstacles to overcome before chatbots can be used in the marketing sector. These include the following:

1. Recognising user sentiments and emotions; deriving meaningful intent from user problems and responding accordingly.
2. Training a chatbot with an actual human voice in order to ensure that it responds in the correct pitch and tone.
3. Chatbot security: Only relevant information must be gathered, kept, and securely communicated over the internet when designing chatbots.

In order to design a vernacular chatbot and make it polyglot, more human translators are needed rather than machines, and vernacular chatbots need a single standard language, which is currently unavailable. Viability of

data in chatbots: It's critical that a chatbot conveys essential information while also being ready to express the brand's personality to the target audience. A significant difficulty for businesses is integrating chatbots with context and creating, developing, and preserving memories of bots that provide customised responses.

CONCLUSION

The increasing usage of chatbots in online shopping, financial services, travel, and healthcare is causing a gradual change in the way that customers live their daily lives. Chatbots are more effective than people and can reach a large audience through messaging apps.

Chatbots perform a wide range of functions; they can provide vital, life-saving wellness messages or check the weather before making an outfit purchase.

With the decreasing cost of building chatbots, an increasing number of companies are expressing interest in implementing them. A study found that 43% of consumers preferred dealing with real people, while 34% stated they would employ chatbots to establish a human-to-person connection. The majority of commercial chatbots operate on systems developed by companies such as IBM Watson, Facebook Messenger, Skype, Amazon Lex, and Google Cloud Natural Language API.

Applications in Marketing	Use cases	Impacts	Business Drivers	Challenges

1. Customer experience
2. Digital Marketing
3. Advertising
4. Sales
5. Brand Visibility
	1. (a) Sephora
	   (b) HealthJoy
	2. (a) Hipmunk
	   (b) Nat Geo
	3. (a) Hospitality advisory chatbot
	   (b) Investment advisory chatbot
	4. (a) H&M chatbot
	   (b) Amtrak
	5. Unilever
		1. 11% increase in Sephora.
		2. 15-60% increase in CTR (Click Through Rate)
		3. Uplift of more than 14% across brand awareness.
		4. 20% increase in sales after implementing chatbots.
		5. Traffic on the websites of the brand got increased heavily.
			1. Increasing the capability of the business.
			2. Increased use of messaging platform
			3. Advancement of technology in Artificial intelligence.
			4. Increase in the demand of self-service.
			5. Maturing chatbot platforms
				1. Understanding user emotions and sentiments.
				2. Security of Chatbots
				3. Designing a vernacular chatbot.
				4. Viability of data in chatbots.
				5. Integration of chatbots.

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