

ARE INDIAN CONSUMERS HAPPY WITH ARTIFICIAL INTELLIGENCE ENABLED PERSONALIZED CUSTOMER SERVICE?

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ABSTRACT

Both Indian and international businesses have adopted Artificial intelligence (AI) to provide customer services in the form of recommendation engines, chatbots, virtual assistants, etc across the Indian consumer market. Though advanced technologies lead to better services, customers' perception of those services needs to be measured. This study surveys a sample of 1028 Indian consumers countrywide, their view on the AI-run customer services was measured via the questionnaire survey method by adopting convenience and snow-ball sampling techniques. Ten different viewpoints on the AI-run customer services were measured in both positive and negative aspects. Using Independent sample t-test and ANOVA, these variables were tested against the preferences for solving customer issues, demographics (gender, age, marital status), AI knowledge level, willingness to share personal data, and interaction with AI like chatbots and online virtual assistants. The results show that AI customer services are more appreciated by young consumers (25 years and below); male consumers; those who do not prefer human interaction for solving customer issues; those who have good knowledge about AI; those who are willing to share personal information and by those who have interacted with AI. Businesses need to upskill and invest in the right technology to provide a safe and personalized customer service to the end consumer. These results would benefit businesses to learn what the consumers really want and how to educate them to provide better services the way they want it by adopting new technology.

Keywords: AI-Run Customer Services, Customer Satisfaction, Indian Consumer Market, Chatbots, Virtual Assistants, Customer-Machine Interaction.

JEL Classification: M30, M31, M38, M39.

INTRODUCTION

Though Artificial intelligence has been around from the 1950's, it is only recently that the exposure of the consumers to AI has wandered outside the world of Hollywood movies (ARM, 2018). Businesses in developing countries employ AI to build trusted bonds with consumers via personalised service (Kumar et al., 2019). The role of AI would definitely be substantial in moulding the growth and development of India. AI would serve as a catalyst for India to overcome its limitations like bureaucracy and limited infrastructure (Kalyanakrishnan et al., 2017).

The Indian market is a very diverse market with a huge percentage of unconnected population coexisting with a tech-savvy upper and middle class. Therefore, the number of Indian users encountering AI for the first time would be high.

This translates to more positivity about embracing the benefits of AI, rather than questioning data privacy issues (Consumers international, 2019). Salesforce study showed that nearly 78% of Indian consumers are aware of AI and 65% of the consumers are very optimistic about the benefits of AI applications. 86% have a preference for AI over humans to suggest personalized recommendations. 63% are comfortable with AI enabled chatbot interactions and among the various AI applications; the voice assistants have the highest awareness of 83%. 64% also feel that AI will revolutionize the work scenario by generating compelling jobs and rendering more flexibility and freedom. 60% feel that AI would help in the betterment of society and 58% feel that life would become more comfortable (The Hindu, 2020). Indian consumers are very excited about the AI enabled voice assistants as it finds the desired product/service via customized searches (Chopra, 2019). In general, Asian consumers expect AI to have a positive influence in the near future and are also open to more futuristic application of AI compared to other nationalities (ARM, 2018). Asian consumers are also found to be less concerned about privacy issues and keener to purchase AI devices. They also prefer interacting with electronic devices via voice commands (Global consumer insights survey, 2018). However, the survey by PwC shows that 93% of Indian consumers are worried about data privacy issues (PwC, 2018). Some Indian consumers also prefer to use their local dialect to converse with AI-enabled bots as that would make them feel more connected (Zamora, 2017). Communication via AI if made available in local dialects would further strengthen the bond with the consumers (Kumar et al., 2019). Indian consumers prefer to adopt AI in the form of virtual assistants in their day to day applications, in AI enabled customer service applications and in personalization (Devang et al., 2019). They expect the AI bots to be personable with emotional logic, smart, seamless and high performing (Zamora, 2017). In a survey of Indian shoppers, it is found that Indian consumers prefer AI tools which perform competitively, are easily usable, create contentment, develop trust and overall create a benefiting experience (Chopra, 2019). However, Indians are also concerned about AI enabled customer service because of issues like absence of human touch (66%), privacy concerns (23%), inaccuracy (27%), operation difficulty (23%), unavailability (21%) and time wastage (12%) (PwC, 2018).

Businesses can employ AI in India to eliminate human redundancies and efforts in order to handle the queries of Indian consumers. However, in the initial stage, as the AI devices may not be able to handle all the queries and customer issues raised, interference by human assistants would be necessary in order to build trust and strong bonds with the consumers (Chopra, 2019). Also, in developing countries, the consumer data is not organized as there are too many brands, heterogenous market conditions, limited tech-infrastructure and unorganized retail. It would be a challenge for businesses to leverage AI by utilizing the data ecosystem. Investment in data scientists also becomes mandatory so that action plans can be formulated from the available data (Kumar et al., 2019). Hence in order to speed up the development of AI applications in India, it is important to develop the infrastructure like cloud and high-speed network, amend policies and invest in research and training (Dhanabalan & Sathish, 2018).

Understanding the AI preferences of the end consumer is important for businesses to align their marketing practices accordingly. Right now, consumer's preferences are very uncertain, as some prefer human interaction and some don't. Businesses can use this opportunity and demystify AI to satisfy the customers' expectations (Pega, 2017). AI interactions with the consumers generate a lot of data about consumers' preferences and behavior. Businesses should use this data wisely to provide customized service without violating data privacy and build strong trusted customer relations in the long run. Particularly in developing economies like India,

AI is a relatively new technology and it is important for businesses to understand the response of the consumers to AI tools and applications (Chopra, 2019). It is important to study the perspective of the Indian consumer in terms of their preferences and their comfort level towards adopting AI enabled automated customer service (Devang et al., 2019). The literature on marketing related to AI is very scarce (Davenport et al., 2020). Hence this study becomes all the more important.

LITERATURE REVIEW

Artificial intelligence, “*defined as a system’s ability to correctly interpret external data, to learn from such data, and to use those learnings to achieve specific goals and tasks through flexible adaptation*” (Kaplan & Haenlein, 2019) has created a paradigm shift in the way marketing decisions are taken. AI plays an important role in formulating the marketing strategy in businesses now. Marketing which is predominantly an information driven domain reaps huge benefits from the use of AI which improves the value and reduces the cost at the same time (Eriksson et al., 2020). By employing big data analysis, machine learning and predictive analysis, AI helps sales representatives in advancing their services (Moncrief, 2017). AI makes the processes of targeting and customization easier for marketers (Dumitriu & Popescu, 2020). AI enabled e-service agents influence the marketing process by changing the way customers perceive brand satisfaction and communication quality (Chung et al., 2020). AI has revolutionized the economic activity of delivering services to customers by offering a wider range more effectively and efficiently than humans (Castelo, 2019). In the marketing domain, the influence of AI has been increasing in a number of contexts like improved customer-brand interaction, identification of favourable customer specific promotions, enabling bots to handle simple customer queries, prediction of the demands of customers and aiding frontline employees in servicing queries. AI enables marketers to detect patterns from huge unstructured data, extrapolate them and thereby act upon the identified opportunities in real time (Campbell et al., 2020). AI is able to generate customer knowledge by collecting customer data like the type, recency, frequency and size of previous purchases, demographic and psychographic features, firm interactions and present browsing behavior. Using algorithms, AI processes the customer profiles thus generated in order to develop better customer relationships and to identify prospective customers (Paschen et al., 2019). If the prediction accuracy of AI increases with the help of more customer specific information, companies would be able to reap huge profits in form of increased wallet share of customers achieved with perfect product/service recommendations for every customer based on his/her preferences (Agrawal et al., 2017); Campbell et al., 2020) shows that AI plays an important role in all the various stages of the marketing plan which include: analysing the present scenario where macro variables are analysed; followed by the stage of understanding the micro factors of the market and the consumers; the segmentation, targeting and positioning stage; the stage of detailing the objectives, directions and marketing support; the development of product strategy stage; the stage of pricing strategy development; the development of logistics strategy and channels stage; the stage of influence strategy and marketing communication development and finally the identification of performance metrics and corrective control.

AI assists front line employees to enhance their interactions and provide more customized and value-added service for the technology-empowered customers (Marinova et al., 2017). In order to service customers, AI masters mechanical intelligence first, followed by analytical, then intuitive and finally empathetic intelligence which is the most difficult. For example, AI enabled

call centre agents who service customer complaints need empathetic intelligence in order to empathize with customers; intuitive intelligence for understanding the context as in why customers raise the complaint; analytical intelligence for analysing the problems of customers and mechanical intelligence to provide scripted responses for simpler issues (Huang & Rust, 2018). AI enhances the consumers' well-being by making the choices offered to consumers more efficient, easier and more practical. But however, they can also threaten consumers' autonomy which they seek in decision making as consumers are unable to control their own choices and also eliminate/reduce the effort they must invest in making choices. Instead of feeling empowered consumers may tend to feel isolated from their ability to choose (André et al., 2018). Any AI system implemented is of use only if consumers are able to accept it as consumers may have reservations in confiding their personal data and in trusting a machine's judgement and recommendations. Consumers need to have confidence in the ability and the recommendations of AI enabled devices and trust that their personal data will not be misused (Kaplan & Haenlein, 2019). Gaining customer trust is important for AI enabled bots to provide the desired service and transparency is the best possible way to achieve that (Pega, 2017). For example, customers buy one out of every 20 items recommended by the AI of the online shopping site, Amazon (Agrawal et al., 2017). One out of two consumers in the survey by Weber Shandwick report that AI helps in making purchase decisions faster and also offers companionship (Krc Research, 2016).

AI Adoption by Consumers

Consumers' preferences, habits, wants, needs, interests and tastes form the basis of intelligent advertising. In order to develop consumer insights, this data is very important and needs to be collected at various touch points via virtual AI assistants (Li, 2019). But what consumers think about these engagements with AI bots, virtual assistants and recommendation engines is important for businesses to plan their adoption of AI in customer interactions (Pega, 2017). The adoption of AI by consumers depends on the emotional, physical and cognitive abilities of AI devices (Castelo, 2019). The way in which AI is adopted by customers is different for various activities. Most customers avoid AI adoption for activities centred around one's individual personal identity (Davenport et al., 2020) as automation is undesirable when consumption is driven by identity motives and consumers who identify themselves with a specific social group are hesitant to adopt automation in identity relevant products as it avoids the attribution of the outcome to the self (Leung et al., 2018). For example, in medicine there is resistance to AI adoption by consumers owing to uniqueness neglect. AI providers in medicine are perceived as less able to cater to the unique characteristics of consumers compared to the human providers (Longoni et al., 2019). On one hand, more consumers are tending to rely more on the information provided by the AI enabled agents whereas on the other hand, the AI-enabled agents are perceived as low-construal agents and their persuasion becomes more effective when their messages also have low-construal features. However, there is a reduction in the low-construal perception of the AI enabled agents when they were perceived as competent of learning from the environment (Kim & Duhachek, 2018). Consumers also tend to indulge in increased compensatory consumption like eating in excess or purchasing status goods when interacting with AI robots as the interaction induces discomfort and seems threatening to personal identity (Mende et al., 2019). Though consumers adopting AI perceive them as powerful, they are perceived to be completely incapable of feeling. This lack of emotional intelligence can translate to a lack of trust with AI enabled devices. This lack of trust is also owing to a lack of vulnerability as the AI enabled devices do not face any consequences of wrong judgement. The

trust issues with AI is also because AI is designed to operate only within limited conditions and consumers get disappointed when the limits are pushed. Building of trust is crucial with the advancement of sophistication among the AI devices (Gray, 2017). Increased customer data collection could help provide increased personalization. However, personalization paradox sets in when customer data is collected without the consent of customers which ultimately results in lower adoption rates and increased customer vulnerability. Hence the company's strategy for data collection of customers' preferences need to be meticulously planned as it is an important determinant of customers' reaction to personalized advertising (Aguirre et al., 2015). Balancing the usefulness perceived and the consumers' comfort is an important challenge for companies to promote AI adoption. Consumers' comfort in using AI is more psychological and less to do with the technical benefits of AI. It is important to measure the perceived usefulness of AI in order to increase the adoption of AI (Castelo, 2019).

A study by Luo et al. (2019) also showed that only when the identities are undisclosed, AI enabled bots perform equally well in conversational commerce as proficient human workers and nearly four times better than even the inexperienced human workers. But when the identity of the bot is disclosed prior to the conversation, the purchase rates and the call duration fall drastically. This fall is owing to the subjective perception of AI enabled bots as less empathetic and less knowledgeable. Majority of the consumers expect AI to comprehend them and interact with them using natural human language (ARM, 2018). Which conversing with AI enabled bots, consumers use smaller messages but take a longer time to converse compared to conversations with human assistants. There is also a shortage of vocabulary but higher profanity. Given the shortcomings of AI interactions, consumers are still keen to interact with AI devices and applications (Hill et al., 2015). In the luxury brands market, chatbots are found to deliver very engaging and interactive customer-brand service relationships as the customers perceive to have received quality communication thereby increasing customer satisfaction and enhanced exclusive shopping experience (Chung et al., 2020).

The challenges of consumer privacy and regulation are an important variable to be factored in while integrating AI into marketing practices. Consumers are reasonably getting more worried about what data is being obtained from them and how they are being utilised (Campbell et al., 2020). The other challenge is that though AI may augment the capabilities of sales agents to provide better customer service, customers may not be comfortable when they discover that they are interacting with AI enabled bots thereby leading to negative consequences. It is important to understand when the customers' perception of AI enabled bots is negative and also whether this perception improves with time (Davenport et al., 2020). The near future of customer service would be a complete integration of AI and human intelligence in form of AI-assisted human agents. They would revolutionize customer service with faster quality service by combining the understanding and knowledge of humans with the speed of computer programs (Campbell et al., 2020).

Influence of Demographics on AI Adoption

Age plays a very important role with respect to assessing the difficulty level of tasks and specially in the execution of computer-based work. Older individuals have a longer response time and have more errors in computer-based work (Czaja & Sharit, 1993). With respect to the adoption of technology, older individuals are more influenced by subjective norms like peer influence whereas younger individuals are more affected by their attitude towards technology usage.

The reason for this is because younger individuals are more exposed to technology at a younger age when compared to older individuals who are more familiar with nontechnology solutions. Also, younger individuals are more confident in technology related judgements (Morris and Venkatesh, 2000). Younger consumers having been raised in the digital era are found to understand, trust and use AI better and are also more hopeful about the future of AI. Younger consumers are also less concerned about the data privacy issues (ARM, 2018). The global consumer insights survey also shows that young consumers between the age of 18 to 34 years are those who purchase AI devices earlier and are the early adopters (Global consumer insights survey, 2018).

Gender also influences the acceptance of new technology. The technology usage of men was found to be more affected by how they perceive it to be useful whereas that of women was found to be influenced by subjective norm and by how easily it can be used (Venkatesh & Morris, 2000). The global survey by Weber Shandwick also shows that men find AI to be more beneficial when compared to women (KRC Research, 2016). Male consumers are more positive about the applications of AI in the future when compared to female consumers (ARM, 2018). Similarly, male consumers are keener to purchase AI devices (Global consumer insights survey, 2018).

Objective of the Study

The main objective of the study is to analyse the Indian consumers' viewpoint of AI-run customer services with respect to

1. Preferences for solving customer issues
2. Demographics like gender, age and marital status
3. AI knowledge level
4. Willingness to share personal data, and
5. Interaction with AI applications like chatbots and online virtual assistants.

Hypotheses of the study

Based on the literature review, the following hypotheses were developed.

H₁: There is a difference in the means of the consumers' view on AI between the two groups of respondents divided on the basis of preferences for solving customer issues.

H₂: There is a difference in the means of the consumers' view on AI between the two groups of respondents divided on the basis of the gender.

H₃: There is a difference in the means of the consumers' view on AI among the groups of respondents divided on the basis of the age.

H₄: There is a difference in the means of the consumers' view on AI among the groups of respondents divided on the basis of the marital status.

H₅: There is a difference in the means of the consumers' view on AI among the groups of respondents divided on the basis of the knowledge of AI.

H₆: There is a difference in the means of the consumers' view on AI among the groups of respondents divided on the basis of the willingness to share personal data.

H₇: There is a difference in the means of the consumers' view on AI among the groups of respondents divided on the basis of their interaction with AI in terms of chatbots/virtual assistants.

Sample and Methodology

The population for the study is the Indian consumers residing in India who have at least minimum knowledge about online e-commerce communication (need to at least have an active Facebook account). Questionnaire survey method was adopted for data collection and the survey was administered via the Google forms application of Google. Convenience sampling and snow-ball sampling techniques were adopted to identify the sample. The sample consisted of respondents residing in the major metropolitan cities of India namely Delhi, Mumbai, Kolkata, Chennai, Bangalore, Hyderabad, Pune and Cochin. The total valid questionnaires collected were 1028 and hence the sample size was 1028.

Results and Analysis

Nowadays businesses attempt to handle customer grievances using artificial intelligence enabled services like chatbots, online virtual assistants, etc. This study attempts to understand the consumers' perspective of these AI enabled services. Indian consumers from different parts of the country were surveyed in order to measure their view on AI enabled customer services. The pan India survey consisted of a diverse sample with an approximately equal proportion of male and female consumers. Nearly 43.5% of the sample was male and 56.5% were female. The biological age of the sample respondents was spread over a wide range with the average age of the sample being around 37 years. The sample consisted of respondents working in different occupations with Rs. 6.15 lakhs being the average annual income. The average AI knowledge level which was measured on a scale of 1 (lowest) to 5 (highest) was around 3 which indicated that the sample had mediocre knowledge about artificial intelligence, neither too high nor too low. The survey of global consumers conducted by Weber Shandwick also showed that only 18% knew a lot about AI, 48% knew only a little and the rest did not know anything (KRC Research, 2016). The profile of the survey respondents is shown below in Table 1.

Dimension		Count	Percentage	Cumulative%	Mean	S.D
Gender	Male	447	43.5	43.5	-	-
	Female	581	56.5	100		
Age	25 and below	242	23.5	23.5	37.21 years	13.93
	26 to 35 years	294	28.6	52.1		
	36 to 45 years	162	15.8	67.9		
	46 to 55 years	169	16.4	84.3		
	above 55 years	161	15.7	100		
Occupation	Business	123	12	12	-	-
	Service	67	6.5	18.5		
	Professional	288	28	46.5		
	Homemaker	170	16.5	63		
	Salaried	172	16.7	79.8		
	Others	208	20.2	100		
Annual Income	Rs. 2 lakhs and below	291	28.3	28.3	Rs.6,15,759	418103
	Rs.2.01 to 4 lakhs	118	11.5	39.8		

	Rs. 4.01 to 6 lakhs	109	10.6	50.4		
	Rs. 6.01 to 8 lakhs	70	6.8	57.2		
	Rs. 8.01 to 10 lakhs	95	9.2	66.4		
	More than Rs.10 lakhs	345	33.6	100		
AI Knowledge Level	Level 1 (Lowest)	110	10.7	10.7	2.94	1.046
	Level 2	201	19.6	30.3		
	Level 3	417	40.6	70.8		
	Level 4	238	23.2	94		
	Level 5 (Highest)	62	6	100		

The consumers' view on AI enabled customer services were measured using ten statements, five in the positive aspect and five in the negative aspect, so that the consumers' perspective could be measured without any survey bias. The statements were measured on a Likert scale ranging from 1 (lowest) to 5 (highest). The average mean of both the positive and the negative statements were around 3 indicating that the consumers opinions were around the average value. The reliability of these statements was assessed using Cronbach's alpha. The Cronbach's alpha of the positive statements was found to 0.827 and that of the negative statements was found to 0.736. Both the scores were way beyond the thumb rule of 0.5 proving the reliability of the data in Table 2.

Consumer's view on AI enabled customer service	Mean	Average Mean	Cronbach's Alpha
AI can provide the same, if not better, levels of customer service than a human can today	2.99	3.08	0.827
AI knows all the facts and policies better than many customer service representatives I've dealt with	3.12		
Getting customer issues resolved without human interaction is faster and less of a hassle dealing with an AI-powered chatbot or phone operator	2.99		
AI has a big positive impact on my personal life via shopping and customer service with personalized recommendations and AI enabled service operators	3.12		
AI has successfully provided personal customised content on all my social handles which I follow	3.17		
I prefer dealing with a real person when I have a customer service issue	3.93	3.19	0.736
AI has screwed up in the past and not dealt with my problem satisfactorily	3.21		
Don't see AI having an impact on my personal life because I don't trust AI to help at all.	2.79		
I do not like the idea of a robot being used by companies to communicate with their customers	3.12		
I worry my job will be replaced by robots and AI	2.88		

The sample respondents were also asked their preference for getting the customer issues solved, whether with human interaction or without human interaction. Majority of the respondents, nearly 71% opted for human interaction and only 29% opted for no human interaction for solving customer issues. The pie chart below gives the pictorial representation of

this. The results are similar to the Pega (2017) global survey results where the majority of their sample also had a strong preference for human interaction as they have always interacted with humans for their customer service enquiries. The results of the Ipsos survey also showed that 66% of the respondents do not like to interact with robots in order to communicate with companies (Riolo & Bourgeat, 2019) in Figure 1.

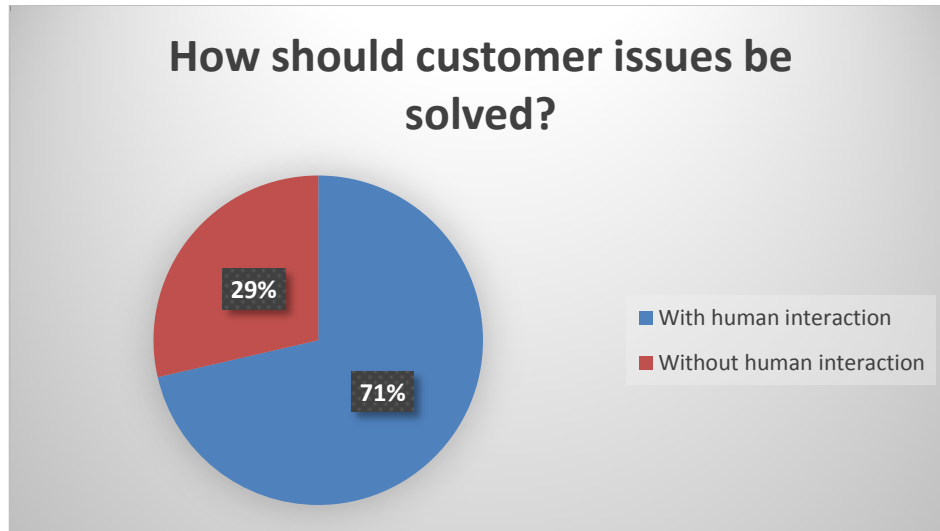


FIGURE 1
PREFERENCE FOR SOLVING CUSTOMER ISSUES

In order to check the consistency in the opinions of the sample respondents, the independent sample t-test was conducted between the ten statements which measured the consumers' view on AI enabled customer services and the preference for solving customer issues. The negative statements measuring the consumers' view on AI enabled services were reverse coded in order to analyse all the statements simultaneously in Table 3. The null hypothesis tested here is

H₁₀: There is no difference in the means of the consumers' view on AI between the two groups of respondents divided on the basis of preferences for solving customer issues.

Table 3 INDEPENDENT SAMPLE T-TEST – CONSUMERS' VIEW VS. HUMAN INTERACTION				
Consumer's view on AI enabled customer service	With human interaction (Mean)	Without human interaction (Mean)	t-value	p-value for one tail test
AI can provide the same, if not better, levels of customer service than a human can today	2.80	3.46	-9.574	0.000
AI knows all the facts and policies better than many customer service representatives I've dealt with	2.99	3.45	-6.475	0.000
Getting customer issues resolved without human interaction is faster and less of a hassle dealing with an AI-powered chatbot or phone operator	2.75	3.58	-11.779	0.000

AI has a big positive impact on my personal life via shopping and customer service with personalized recommendations and AI enabled service operators	2.97	3.49	-7.459	0.000
AI has successfully provided personal customised content on all my social handles which I follow	3.03	3.50	-6.646	0.000
I prefer dealing with a real person when I have a customer service issue	4.10	3.49	10.184	0.000
AI has screwed up in the past and not dealt with my problem satisfactorily	3.31	2.96	5.475	0.000
Don't see AI having an impact on my personal life because I don't trust AI to help at all.	2.93	2.47	7.070	0.000
I do not like the idea of a robot being used by companies to communicate with their customers	3.34	2.60	9.953	0.000
I worry my job will be replaced by robots and AI	2.97	2.65	3.818	0.000
Consumers' View on AI enabled services (net)	27.90	33.32	-13.94	0.000*

*Rejected at 0.01 level

The Independent sample t- test results show that the respondents who prefer customer issues to be solved with human interaction and without human interaction differed in all the variables determining consumers' view on AI enabled services. The results further indicate that the consumers who prefer customer issues to be solved without human interaction feel that AI enabled services are better when compared to consumers who preferred human interaction. The AI enabled customers services measured in terms of better service, better knowledge of customer policies, hassle-free faster service, personalized recommendations and personalized content were preferred by the respondents who preferred no human interaction for solving customer issues. On the other hand, the consumers who preferred human interaction for solving customer issues feel that AI enabled services were not good enough as they preferred real people, had had a bad past experience, have trust issues, did not prefer robots and was also worried about jobs being replaced.

By reverse coding, the negative statements were also made positive and the net of all the variables determining the performance of AI enabled services was tested. The results showed that consumers who prefer customer issues to be solved without human interaction feel that AI enabled services are better when compared to consumers who preferred human interaction.

Consumers' View on AI Enabled Services vs. Demographics

In order to determine the differences in consumers' views on AI enabled services with respect to the demographics of the sample, Independent sample t-test and Analysis of Variance (ANOVA) tests were performed.

The Independent sample t-test tests the hypothesis that there is no difference in the means of the consumers' view on AI between the two groups of respondents divided on the basis of gender. The results in Table 4 below show that the male and female respondents differ in their view on AI enabled services. The male consumers felt that AI enabled services for solving customer issues were better when compared to the female consumers owing to the higher mean.

INDEPENDENT SAMPLE T-TEST RESULTS OF GENDER VS. CONSUMERS' VIEW ON AI			
Male (Mean)	Female (Mean)	t-value	p-value for one tail test
29.84	29.15	1.788	0.037**

** Rejected at 0.05 level

ANOVA was used to test if there were differences in the mean with respect to the other dimensions. Table 5 shows the ANOVA results of all the other dimensions which were significant. The results were not significant for the variables: Annual income, Education, Occupation, City of Residence.

The results in Table 5 show that the consumers differed in their view on AI enabled services when they were divided on the basis of dimensions like age, marital status, AI knowledge level, willingness to share personal data or their interaction with AI.

With respect to age, the respondents in the age group of 25 and below had the highest mean (30.54) and the mean was lower for the other age groups. This indicates that the younger consumers felt that AI enabled customer services were better when compared to older consumers. Younger Asian consumers who are technology oriented have immense knowledge about AI (ARM, 2018). Hence younger consumers could appreciate AI services better.

With respect to the marital status, the respondents with the status of 'Single' had the highest mean (30.25) and the mean was lower for the other groups. This indicates that the single consumers felt that AI enabled customer services were better when compared to the consumers in other marital statuses.

The AI knowledge level which was measured on a scale of 1 (lowest) to 5 (highest) were regrouped into three groups comprising of the low knowledge group which included level 1 and 2, mediocre knowledge group which included level 3 and high knowledge group which included level 4 and 5. With respect to the AI knowledge level, the respondents in the high knowledge group had the highest mean (30.42) and the respondents in the low knowledge group had the lowest mean. This shows that the consumers who are more knowledgeable about AI feel that AI enabled customer services are better. The Tukey post hoc results in Table A1 also shows that the mean in the low knowledge level was significantly lower than the means in the other knowledge levels. Hence lower is the AI knowledge level, more is the tendency to dislike AI enabled customer services. These results are similar to the global survey results of Weber Shandwick which also show that consumers who are more knowledgeable about AI are more comfortable, more positive about the benefits and expect more from AI enabled services (KRC Research, 2016).

With respect to the willingness to share personal data, the respondents who are willing to share personal data have the highest mean (32.68) and those who are not willing have the lowest mean. This shows that the consumers who are more willing to share personal data to get customized service feel that AI enabled services are better. The Tukey Post hoc results in Table A2 also shows that the mean in the willing to share group was significantly higher than the means in the other groups. Similarly, the mean in the not willing to share group was significantly lower than the means in the other groups. Hence, more is the willingness to share personal data, more is the tendency to like AI enabled customer services. The Consumers International survey also shows that Indian consumers are hesitant to share personal information owing to an absence of clarity about the usage of the personal data and absence of control (Consumers International, 2019).

With respect to the interaction with AI, the respondents who have interacted with AI have the highest mean (30.28) and those who have not interacted have the lowest mean. This indicates

that the consumers who have interacted with AI, feel that AI enabled services are better. The Tukey Post hoc results in Table A3 also show that the mean in the AI interaction group was significantly higher than the means in the other groups. Hence, more is the interaction with AI, more is the tendency to like AI enabled services.

Similarly the results of the survey conducted by Consumers International show that Indian consumers enjoy the AI enabled services for the motivation, independence and stimulation they deliver. AI services also provide empowerment especially to Indian women as they could now make their own decisions with the available information like Google maps, shopping recommendations, etc. On the downside, some Indian consumers also found AI's personalised recommendations causing impulse shopping, addictive behaviors and out of control decisions. Also AI couldn't cope with the changing preferences of customers (Consumers International, 2019) (Table 5).

Dimension	Categories	N	Mean	Std. Deviation	F-value	p-value
Age	25 and below	242	30.54	5.443	2.735	0.028
	26 to 35 years	294	28.89	6.545		
	36 to 45 years	162	29.47	5.851		
	46 to 55 years	169	29.18	5.937		
	above 55 years	161	29.08	6.748		
Marital Status	Single	323	30.25	5.531	3.587	0.013
	Married	691	29.13	6.406		
	Divorced	8	26.38	5.317		
	Widow/Widower	6	26.5	3.271		
AI Knowledge Level	Low	311	27.89	5.916	15.284	0.000
	Mediocre	417	29.91	6.104		
	High	300	30.42	6.16		
Willingness to Share Personal Data for Customized Service	Yes	112	32.68	6.085	54.718	0.000
	No	498	27.56	6.109		
	Maybe	418	30.83	5.457		
Interaction with AI	Yes	674	30.28	6.005	19.228	0.000
	No	266	27.65	6.078		
	Not sure	88	28.51	6.216		

In order to further explore the hypothesis which tests the consumers view on AI enabled services with respect to the AI interaction, the AI interaction is further divided into chatbots and online virtual assistants. Independent sample t-test was conducted to compare the means between the groups divided with respect to the usage of (a) Chatbots and (b) Online virtual assistants. The results in Table 6 show that the respondents who have used chatbots/online virtual assistants and those who have not used differ in their view on AI enabled customer services. The respondents who have used chatbots/online virtual assistants have a higher mean when compared to those who have not used them. This implies that consumers who have used chatbots/online virtual assistants feel that AI enabled services are better.

Hence like the results of the Pega (2017) global survey, the consumers who have used AI enabled services understand AI better and are more comfortable with AI than those who have not used AI enabled services.

AI enabled Customer Service tool	Categories	N	Mean	Std. Deviation	t-value	p-value for one tail test
Chatbots	Not Used	659	28.79	6.100	-4.619	0.000
	Used	369	30.62	6.066		
Online Virtual Assistants	Not Used	665	28.8	5.973	-4.644	0.000
	Used	363	30.64	6.292		

Discussion of the Results and Managerial Implications

The first major finding of this study is that consumers who prefer human interaction do not appreciate AI enabled customer services and those who do not prefer human interaction do appreciate the services. Hence the important takeaway for businesses is to first divide their target customers into those who prefer human interaction and those who do not. Investing and deploying AI – technology for those who prefer human interaction would be a waste of resources. Hence while solving customer issues, customers can be asked to choose between with/without human interaction and accordingly human assistants or AI-assistants can be allocated.

The results of the study with respect to the demographic dimensions show that male consumers appreciate AI enabled services better than female consumers which corroborated with the results of KRC Research (2016); ARM (2018) and Global consumer insights survey (2018). Young consumers also appreciate the AI enabled services better, which again corroborated with the results of ARM (2018) and Global consumer insights survey (2018). Most of the young consumers are in the marital status of Single, so Single consumers appreciated the services better. Hence businesses can invest in AI enabled customer services for the young male consumers and educate the other demographic groups on the usefulness of AI and reassure their data security and privacy concerns. The next important finding of the study is that consumers with good knowledge about AI appreciate AI enabled services better than those without. These results corroborate with the results of KRC Research (2016). Businesses need to create awareness and educate the end consumer about AI and its applications so that their knowledge level increases and they are able to appreciate AI enabled services.

The consumers who are willing to share personal information are those who appreciate AI enabled services than those who are not willing. When businesses are able to explicitly request permission for consumers' personal data after mentioning the usage of that data, trust to share the data would be created. This trust created by transparency would lead to acceptance towards AI applications of personalised service. Businesses need to invest in developing that trust.

The final important finding of this study is that consumers who interacted with AI like chatbots and online virtual assistants appreciate AI enabled services better than those who have not. Hence businesses need to encourage consumers to interact with AI applications by stating the advantages of AI-assistants like better quality of service, better knowledge of customer policies, hassle-free faster service, personalized recommendations, and personalized content.

CONCLUSION

Businesses invest a lot of resources on AI technology in view of satisfying the end consumer with great service. But is the consumer really happy with this kind of service? This study was an attempt to explore the Indian consumers' view on AI enabled customer services. By surveying a sample of 1028 Indian consumers across India, this study has highlighted some important findings. AI customer services are more appreciated by young consumers; male consumers; by those who do not prefer human interaction for solving customer issues; by those who have good knowledge about AI; by those who are willing to share personal information and those who have interacted with AI like chatbots/online virtual assistants. Businesses need to cater AI based services to these groups and educate the other groups about the advantages of AI applications. Businesses need to be more open and transparent about their adoption of AI technology to handle customer queries. They need to elaborate clearly on how AI would enhance customer experience and position it accordingly. They need to also caution customers on the guidelines regulated to protect their privacy. If businesses are able to empower customers with the right AI-enabled interactions, customer satisfaction would increase which in turn increase customer loyalty and ultimately raise the profits.

APPENDIX

(I) AI Knowledge Level Codes into Low Med High	(J) AI Knowledge Level Codes into Low Med High	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Low AI Knowledge Level	Mediocre AI Knowledge Level	-2.013*	.454	0.000	-3.08	-.95
	High AI Knowledge Level	-2.529*	.491	0.000	-3.68	-1.38

*The mean difference is significant at the 0.05 level.

(I) Share Personal Data for Customization	(J) Share Personal Data for Customization	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Yes	No	5.118*	0.612	.000	3.68	6.55
	May be	1.846*	0.622	.009	.39	3.31
No	Yes	-5.118*	0.612	.000	-6.55	-3.68
	May be	-3.272*	0.388	.000	-4.18	-2.36
May be	Yes	-1.846*	0.622	.009	-3.31	-.39
	No	3.272*	0.388	.000	2.36	4.18

*The mean difference is significant at the 0.05 level.

(I) Interaction with AI	(J) Interaction with AI	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Yes	No	2.630*	.437	0.000	1.60	3.66

	Not sure	1.769*	.685	0.027	0.16	3.38
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*The mean difference is significant at the 0.05 level.

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