AI and Communication: An analysis of Automation Potential and Customer Preferences in Customer Service and Psychology

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ABSTRACT

This article analyzes the potential of AI in communication-related tasks based on two theoretical concepts: task-based technological change and the credibility of the communication agent, which is linked to Aristotle's Ethos and Daniel Dennett's concept of "fake people". By comparing AI tools in areas where human presence is important, such as psychology and customer service, the article argues that AI is particularly suited for customer service due to shorter interactions and simpler tasks. However, AI can also be of great benefit in psychology to facilitate routine tasks. The study highlights the importance of balancing customer service robots and personal service to meet customer preferences. The article indicates that there is a need for further studies based on the TAM3 model to investigate the willingness of customer service specialists and customers to use AI tools.

INTRODUCTION

The perspective that automation will change the labor market has been discussed in economic research literature for many years, including within the framework of the task-based technological change hypothesis. This hypothesis suggests that technological advances reduce the demand for routine, middle-wage jobs but increase the demand for non-routine jobs found at the ends of the job-wage distribution.

In Sweden, there has been both statistically and economically significant growth in non-routine jobs for the 1970s and 2000s.[1] When analyzing work based on different types of tasks, such as abstract, routine, and communication-related, the communication-related tasks stand out most clearly in both wage tails and seem to be increasing in importance.[1]

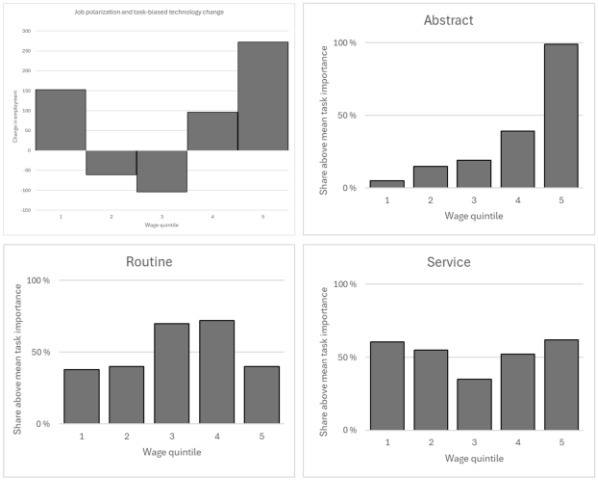

Figure 1. The effect of technology to routine jobs and wages.[1]

This raises questions about how new AI tools have affected the demand for job roles where human presence is important. Is it even possible to automate such roles? And can an assessment of abstract, routine, and communication-related tasks in different roles be useful when considering automation of the role?

The second starting point in this article's theoretical context originates from the period before Christ and is known as Aristotle's three-legged stool. By three-legged stool, Aristotle meant three types of arguments that can be used to persuade listeners: Ethos, Pathos, and Logos.

Ethos is about the speaker's credibility. What makes the listener believe this person, and what arguments can be used to convince the listener of the speaker's credibility? Logos involves argumentation based on statistics, facts, and examples. Pathos is linked to emotional arguments. Are you personally engaged in the issue, and how can you show your engagement to the listener?

AI tools are good at retrieving and presenting statistics, facts, and examples. Even Pathos can be conveyed by using a human voice or creating a pleasant avatar to communicate with. But how do you create AI's Ethos in communication-related tasks? Can AI reason about human emotions if it doesn't feel anything itself?

Aristotle's Ethos in the AI context can be compared to Daniel Dennett's concept of "faking people". Daniel Dennett, who is 81 years old, is the author of hundreds of articles and books on "consciousness, free will, and the origin of religions." In an AI experiment, the artificial intelligence GPT-3 was trained on Dennett's texts to answer ten philosophical questions. Subsequently, the philosopher answered the same questions. Different experiment participants, with and without experience of philosophical studies, were asked to assess whether the answers to the 10 philosophical questions were written by a philosopher or by an AI tool. Assessing correctly proved to be extremely difficult. The philosopher believes that it should not be forbidden to conduct experiments where AI simulates humans, but it is important to clearly inform about this when a person communicates with AI in everyday contexts.

To connect our theoretical reasoning to reality, this article uses studies that analyze the possibilities of automating "very human professions such as psychologist and customer service specialist" as a starting point.

AI AS A PSYCHOLOGIST

Joseph Weizenbaum's Eliza

Eliza, a chatbot, was developed in the 1960s and followed a psychotherapeutic tradition based on encouraging the patient to share feelings and experiences with the help of questions such as "Tell me more!" or "How long have you felt this way?". Joseph Weizenbaum's purpose in creating Eliza was to show how limited communication between humans and chatbots is. Therefore, he was very surprised by Eliza's success among, for example, his own colleagues, who did not find it strange to communicate with Eliza since they were aware from the beginning that they were communicating with a robot and did not have the same expectations as with human communication.[2]

Per Carlbring's research

Per Carlbring, professor of clinical psychology, investigates in the article "Human or ChatGPT: Whose answers are most appreciated in psychological guidance?" how AI-generated messages are assessed in comparison to responses from humans. In the study, 140 participants, without knowing whether they were communicating with a chatbot or a human, were

	ChatGPT			Human					Cohen's
	M	SD	SEM	M	SD	SEM	t	p	d
Authenticity	36.33	7.43	0.628	33.27	7.58	0.639	5.33	0.000	0.40
Professionalism	36.18	7.70	0.651	32.26	7.67	0.648	6.86	0.000	0.51
Practicality	36.73	7.70	0.651	34.19	8.20	0.694	4.34	0.000	0.31

Table 1. How AI-generated messages are assessed in comparison to responses from humans.[3]

asked to assess the responses based on authenticity, professionalism, and practical applicability. Table 1 shows that AI's responses were on average perceived as more practical, professional, and even more authentic.[3]

In the program "AI against depression - future or dystopia?" Per Carlbring talks about a follow-up study where participants were informed that they were communicating with AI.[4] This led to a change in their attitude towards the AI responses. Despite the fact that AI responses were sometimes judged as better than humans', many still preferred to communicate with a human therapist. Per Carlbring believes that this may be due to so-called intention, meaning that AI tools, despite showing a willingness to help, are not perceived as genuine to the same extent as humans.

In the article "ChatGPT, psychotherapy and faking people", Carlbring discusses the advantages and disadvantages of AI therapy. Among the disadvantages, it is mentioned that an AI-based conversational agent lacks the ability to interpret the patient's body language, cannot develop "a therapeutic emotional relationship with the patient" and is unable to share "own lived experiences". However, AI can be included in treatment as a virtual teacher available around the clock, who can ask leading questions or provide feedback on homework after real sessions. AI can be helpful during treatments where patients are forced to tell shameful things and feel that the machine cannot judge them, unlike the human doctor. AI tools can also be used as one of the information sources for clinicians or help people who have difficulty communicating with others. In addition, AI tools can be used for educational purposes for psychologists by building patient simulators, which makes it possible to practice more difficult issues, such as dealing with violent situations involving children.[5]

Conclusions: AI as a Psychologist

When the theoretical basis of the article is applied to Per Carlbring's and Joseph Weizenbaum's research, it becomes clear that both credible Ethos and the distribution between routine and communication-related tasks within a profession are relevant criteria for automation of work tasks. Another important aspect is to be transparent about the use of AI and to give individuals the opportunity to choose between an AI-based solution or help from a human, as clearly illustrated by the Eliza experiment as early as the mid-1960s. In situations where patients find it difficult to share their experiences with other people, AI tools can facilitate treatment.

AI IN CUSTOMER SERVICE

”Bot or not – A customer’s perspective of customer service chatbots and human customer service representatives in E-commerce”

This study examines e-commerce customers' experiences and preferences towards chatbots compared to human customer service representatives. The study uses the UTAUT model (Unified Theory of Acceptance and Use of Technology), which explains factors that influence the acceptance and use of technology. The study was conducted as a survey where data was collected on customers' perceptions of the robots' expected performance, ease of use, social influence, and facilitating conditions.

The study found that participants considered human customer service representatives to be better than robots in almost all categories. This suggests that customers are still hesitant to use customer service robots. The results of the study can help to develop customer service robots that are more useful and acceptable to customers.[6]

”The Value of self-service: Long-term effects of technology-based self-service usage on customer retention”

The previous section discussed users' relationships with self-service channels in e-commerce. But how do self-service channels affect customer-company relationships? The cost-effectiveness of these channels has been proven in many scientific articles, but their impact on customer loyalty is rarely a research topic.

The article "The Value of Self-Service: Long-term effects of technology-based self-service usage on customer retention" compares the impact of self-service and personal service on customer churn using a U-shaped model. The lowest churn is

observed at intermediate levels of both self-service and personal service. The conclusion is that customers are most likely to end the customer relationship when they are only offered one type of service delivery.[7]

The researchers find support for their conclusions in previous studies as well. Tasks in service environments can vary greatly, from simple to more complex and demanding. Self-service channels are characterized by low personalization, while personal service channels have linguistic variation and immediate personal feedback.[7]

A summary of previous research is illustrated in table 2.

To avoid the problem of when the customer should be given the opportunity to use human channels or self-service, the best solution is to enable the use of both options and let the customer choose. This is consistent with the article's conclusions about churn rates among customers.

"The impact of self-service versus interpersonal contact on customer–brand relationship in the time of frontline technology infusion"

The current research examines how social discomfort leads customers to prefer self-service options in sales and how this ultimately affects customer loyalty to brands. Unlike previous studies, which have focused on different aspects of self-service, this study is limited to sales situations. It is included in our article because it deals with the same subject area.[8]

The study also examines a limitation of self-service technology, namely the lack of relational empathy. Despite the advantages of human contact, customers appreciate self-service technology for the following reasons:

- Salespeople's attempts at persuasion, which are often perceived as intrusive, especially if customers are not ready to buy, are eliminated.
- Information online is easily accessible and diverse, including various reviews and ratings.[8]

Since human contact is still an inevitable part of the service environment, it is important to change the culture of persuasion among sales employees while increasing the proportion of machine-delivered services, which are perceived as neutral information.[8]

Conclusions: AI in Customer Service

Analysis of the articles on AI in customer service reinforces the importance of informing the customer when communication is with a chatbot and giving the customer the opportunity to choose what type of service they want to use. AI is particularly effective at completing simpler, routine tasks in customer service. However, the question of Ethos is complex, and sales situations are a good

	Self-Service Channel	Personal Service Channel
The Value-Proposition what the firm offers	Reduced number of cues leads to efficiency of information exchange.	Rich in relational information, high in social context cues.
	Automated responses lead to accessibility and flexibility.	Human feedback; immediate and individualized attention.
	Few personal touches or social cues.	Highly personalized interactions.
The Value-in-Context when the customer can benefit	Tasks are unambiguous and repetitive; service is not complex or new.	Tasks are quivocal and ambiguous; service is complex, critical or new.
	Customers have expertise, self efficiency, and motivation to use self-service channels.	Customers do not have the skills, motivation and abilities to deliver service or solve a task alone/via technology.
	Customers enjoy "doing it themselves" and wish to be in control.	Customers enjoy human interaction, need to gain trust, overcome anxiety.

Table 2. Summary of previous research, self-service channels and personal service.[7]

example where self-service channels are preferred to avoid human contact. The analysis of the articles on the use of AI in customer service indicates that there is greater potential for AI in this area compared to psychology, as human contacts are much shorter. At the same time, there is disagreement in the study's conclusions regarding the customer's willingness to use self-service channels.

CONCLUSIONS AND SUGGESTIONS FOR FURTHER RESEARCH

The theoretical part of the article gives clear indications of when tasks can be automated with AI tools:

- The analysis of Ethos and the distribution between routine and communication-related tasks within a profession are relevant criteria for the automation of work tasks.
- There is great potential for AI, especially in customer service.
- AI is particularly effective at completing simpler, routine tasks in psychology and customer service.
- It is important to be transparent about the use of AI and to give individuals the opportunity to choose between an AI-based solution or help from a human.

However, since the empirical part, especially the section on AI in customer service, shows conflicting conclusions about customers' willingness to use AI services, the article authors developed a questionnaire. We will not limit the study group to e-commerce customers only, but we will target our form to all users of AI customer services.

The purpose of the form is to gather information about attitudes towards AI services from both specialists in the field and customers who use self-service channels. The answers will be recorded separately for each group. The possibility of distinguishing between the groups will be ensured by sending the form to specialists and making it available on the iwow digital's website, where anyone interested can answer it, regardless of whether they work with customer service or not. We will also provide the opportunity to indicate whether you want to be registered as a specialist or chatbot user.

The study "Bot or not" uses the UTAUT model (Unified Theory of Acceptance and Use of Technology), while our study uses the TAM3 method. Using the TAM3 method, it is possible to analyze not only customers' perceptions of the robots' expected performance, ease of use, social influence, and facilitating conditions, but also, for example, users' willingness to use AI and the tool's relevance to the company's needs.[9]

The theoretical TAM3 model is illustrated in Figure 2. The questionnaire consists of questions that are linked to the different dimensions of the TAM3 model and enables statistical analysis using the R language. Descriptive statistics will be used to describe the sample, including median, mean, and standard deviations. The questions will be linked to the hypotheses about AI use, and the collected data will be analyzed with a one-sided t-test to see if the mean of the data for one group differs from a value we specify. The choice of statistical analysis method is based on the fact that a t-test is one of the methods used in research in the empirical part and aims to make the results comparable.

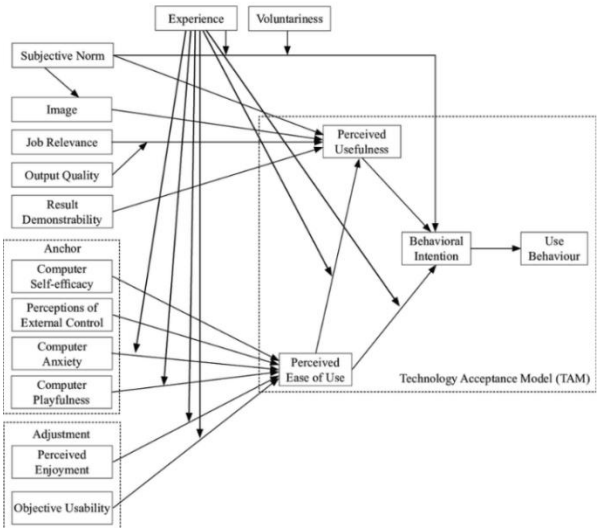

Figure 2. The TAM3-model.[9]

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ATTACHMENT 1 - HYPOTHESES

H1: Customers' perceived usefulness when interacting with customer service chatbots is the same or higher than when interacting with human customer service representatives.

H1a: Customers' perceived usefulness when interacting with customer service chatbots is lower than when interacting with human customer service representatives.

H2: Customers' perceived ease of use when interacting with customer service chatbots is the same or higher than when interacting with human customer service representatives.

H2a: Customers' perceived ease of use when interacting with customer service chatbots is lower than when interacting with human customer service representatives.

H3: Customers' perceived self-efficacy when interacting with customer service chatbots is the same or higher than when interacting with human customer service representatives.

H3a: Customers' perceived self-efficacy when interacting with customer service chatbots is lower than when interacting with human customer service representatives.

H4: Customers' perceived anxiety when interacting with customer service chatbots is the same or higher than when interacting with human customer service representatives.

H4a: Customers' perceived anxiety when interacting with customer service chatbots is lower than when interacting with human customer service representatives.

H5: Customers' perceived enjoyment when interacting with customer service chatbots is the same or higher than when interacting with human customer service representatives.

H5a: Customers' perceived enjoyment when interacting with customer service chatbots is lower than when interacting with human customer service representatives.

H6: Customers' perceived output quality when interacting with customer service chatbots is the same or higher than when interacting with human customer service representatives.

H6a: Customers' perceived output quality when interacting with customer service chatbots is lower than when interacting with human customer service representatives.

H7: Customers' perceived demonstrability of results when interacting with customer service chatbots is the same or higher than when interacting with human customer service representatives.

H7a: Customers' perceived demonstrability of results when interacting with customer service chatbots is lower than when interacting with human customer service representatives.

H8: Customers' perceived behavioral intention when interacting with customer service chatbots is the same or higher than when interacting with human customer service representatives.

H8a: Customers' perceived behavioral intention when interacting with customer service chatbots is lower than when interacting with human customer service representatives.

H9: Customers' perceived behavioral intention when interacting with customer service chatbots is the same or higher than when interacting with human customer service representatives.

H9a: Customers' perceived behavioral intention when interacting with customer service chatbots is lower than when interacting with human customer service representatives.

ATTACHMENT 2 - QUESTIONS

Usage (USE)

- USE1 How many times on average do you use AI in customer service per month?

Introductory Questions (INTRO)

- What is your age?
- What is your gender?

Questions Related to Chatbots (CB)

- For what purpose do you use AI in customer service?

Perceived Usefulness (PU)

- PU1 Using AI in customer service improves my experience as a customer.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

- PU2 AI in customer service increases the efficiency of solving my problems.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

- PU3 Using human customer service improves my experience as a customer.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

- PU4 Human customer service increases the efficiency of solving my problems.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

Perceived Ease of Use (PEOU)

- PEOU1 I find AI in customer service easy to use.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

- PEOU2 I find it easy to get AI in customer service to understand my needs.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

- PEOU3 I find human customer service easy to use.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

- PEOU4 I find it easy to get human customer service to understand my needs.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

AI Self-Efficacy (AISE)

- AISE1 I could solve my problem using AI in customer service if there was no human agent available to help me.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

- AISE2 I could solve my problem using AI in customer service if someone showed me how to use it first.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

- AISE3 I could solve my problem using human customer service.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

Anxiety (AIANX)

- AIANX1 AI in customer service does not scare me at all.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

- AIANX2 AI in customer service makes me feel uncomfortable.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

- AIANX3 Human customer service does not scare me at all.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

- AIANX4 Human customer service makes me feel uncomfortable.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

Perceived Enjoyment (ENJ)

- ENJ1 I find it fun to use AI in customer service.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

- ENJ2 The actual process of using AI in customer service is enjoyable.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

- ENJ3 I find it fun to use human customer service.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

- ENJ4 The actual process of using human customer service is enjoyable.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

Subjective Norm (SN)

- SN1 People who influence my behavior think I should use AI in customer service.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

- SN2 The company has been helpful in guiding me to use AI in customer service.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

- SN3 In general, the company has supported the use of AI in customer service.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

- SN4 People who influence my behavior think I should use human customer service.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

- SN5 The company has been helpful in guiding me to use human customer service.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

- SN6 In general, the company has supported the use of human customer service.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

Voluntariness (VOL)

- VOL1 My use of AI in customer service is voluntary.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

- VOL2 The company does not require me to use AI in customer service.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

- VOL3 Although it can be helpful, it is certainly not mandatory to use AI in customer service.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

- VOL4 My use of human customer service is voluntary.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

- VOL5 The company does not require me to use human customer service.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

- VOL6 Although it can be helpful, it is certainly not mandatory to use human customer service.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

Image (IMG)

- IMG1 Customers who use AI in customer service have more prestige than those who do not.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

- IMG2 Customers who use AI in customer service are seen as more technically savvy.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

- IMG3 Using AI in customer service is a sign of being a modern customer.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

- IMG4 Customers who use human customer service have more prestige than those who do not.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

- IMG5 Customers who use human customer service are seen as more technically savvy.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

- IMG6 Using human customer service is a sign of being a modern customer.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

Relevance to Needs (REL)

- REL1 AI in customer service is important to get my needs met.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

- REL2 AI in customer service is relevant to the types of problems I have.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

- REL3 Using AI in customer service is a good way to address my customer service needs.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

- REL4 Human customer service is important to get my needs met.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

- REL5 Human customer service is relevant to the types of problems I have.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

- REL6 Using human customer service is a good way to address my customer service needs.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

Output Quality (OUT)

- OUT1 I have no problems with the quality of AI in customer service solutions.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

- OUT2 I rate the results from AI in customer service as excellent.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

- OUT3 I have no problems with the quality of human customer service solutions.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

- OUT4 I rate the results from human customer service as excellent.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

Result Demonstrability (RES)

- RES1 The results of using AI in customer service are obvious to me.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

- RES2 I would have a hard time explaining why it might be good or bad to use AI in customer service.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

- RES3 The results of using human customer service are obvious to me.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

- RES4 I would have a hard time explaining why it might be good or bad to use human customer service.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

Behavioral Intention (BI)

- BI1 If I need customer service, I intend to use AI.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

- BI2 I plan to use AI in customer service the next time I have a problem.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

- BI3 If I need customer service, I intend to use human customer service.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

- BI4 I plan to use human customer service the next time I have a problem.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5