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# What Makes Users Trust a Chatbot for Customer Service? An Exploratory Interview Study

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**Abstract.** Chatbots are increasingly offered as an alternative source of customer service. For users to take up chatbots for this purpose, it is important that users trust chatbots to provide the required support. However, there is currently a lack in knowledge regarding the factors that affect users' trust in chatbots. We present an interview study addressing this knowledge gap. Thirteen users of chatbots for customer service were interviewed regarding their experience with the chatbots and factors affecting their trust in these. Users' trust in chatbots for customer service was found to be affected (a) by factors concerning the specific chatbot, specifically the quality of its interpretation of requests and advice, its human-likeness, its self-presentation, and its professional appearance, but also (b) by factors concerning the service context, specifically the brand of the chatbot host, the perceived security and privacy in the chatbot, as well as general risk perceptions concerning the topic of the request. Implications for the design and development of chatbots and directions for future work are suggested.

**Keywords:** Chatbots, customer service, trust, interview study

## 1 Introduction

Chatbots are software agents that interact with users through natural language conversation [8]. As such, chatbots are seen as a promising technology for customer service. For service providers, the quality of customer service is critical for customer satisfaction and loyalty [5]. At the same time, customer service is highly resource demanding as it typically requires highly personalized customer interaction, involving skilled customer service personnel. Intelligent automation of customer service may allow for accessible and efficient support while keeping costs at an acceptable level [23].

Chatbots represent a potential means for automating customer service. In particular because customer service is increasingly provided through online chat. Chatbots are not a novel technology. However, recent advances in artificial intelligence (AI) and machine learning, as well as a general adoption of messaging platforms, has recently motivated companies to explore chatbots as a complement to customer service.

Examples of companies leading the way in such use of chatbots include food companies like Dominos Pizza and Wingstop, where customers can place orders through

chatbots in Facebook Messenger, and retail platforms like Alibaba and Aliexpress, where chatbots serve as the companies' first line of support.

Customer service currently is only an emerging chatbot application area, and general uptake among the intended customer groups is not yet realized. From other technology areas, we know that user trust is critical for a broad uptake of novel interactive solutions [3]. However, our knowledge regarding users' trust in chatbots, and the factors affecting such trust, is severely limited. This is a critical if the aim is to strengthen customer service through chatbots.

In this paper, we contribute a study intended as a first step towards the needed knowledge of users' trust in chatbots. Specifically, we present the results of an in-depth interview study which involved 13 users of customer service chatbots. The study contributes insight into users' perceptions of chatbots for customer service, and shed light on factors that may affect users' trust in chatbots.

The remainder of the paper is structured as follows. First, we present an overview of background on customer service, chatbots, and the concept of trust. We then explicate our research question and detail the research method before presenting our results. In particular, we highlight our findings on users' perceptions of chatbots for customer service and factors affecting users' trust in such chatbots. Finally, we discuss our findings, present an initial set of factors of relevance to trust in chatbots, and suggest implications for practice and for future research.

## **2 Background**

### **2.1 Automation in customer service**

Customer service has always been key to service companies. With the uptake of the internet, customer service has gradually transformed from being personal and dialog-based towards being automated and self-service oriented. However, automation and online self-service solutions do not fully meet users' needs for help and assistance and service providers' costs associated with manual customer service are still increasing [9].

In an effort to provide more efficient customer service, while meeting customers in their preferred channels, service providers offer customer service through a range of online channels, such as company webpages, social media, email, and chat. Customer service through chat is increasingly prioritized. Chat represents a relatively resource effective channel for the service provider, compared to support by e-mail and telephone, as customer service personnel may handle multiple requests in parallel [20]. The chat also provide the user with a written summary of the interaction which may be helpful in terms of instruction details or links to useful online resources.

Given the increasing uptake of chat as a prioritized channel for customer service, chatbots are seen as ever more relevant as a complement to customer service.

### **2.2 Chatbots**

Chatbots are machine agents that provide access to data and services through natural language interaction [2]. Though the term *chatbot* is relatively recent, computer sys-

tems interacting with users in natural language has been developed and researched since the 1960's [22]. The current surge of interest in chatbots is in part due to recent advances in AI and machine learning [21].

Promising chatbot application areas include information services [4], education [10], therapy [7], and, in particular, customer service [23]. A number of tech companies provide platforms that may support chatbots for customer service, including IBM Watson, Microsoft Bot Framework, and Google owned DialogFlow.

Users hold a range of motivations for using chatbots. Brandtzaeg and Følstad [2] found that the most frequently reported motivations for chatbot use were efficiency and convenience, and that user experience, social aspects, and a sense of novelty can also be relevant motivators. A recent study of chatbots for customer service found that customer service interactions are characterized by both emotional and factual statements from customers [23]. Interestingly, AI-powered chatbots may identify and respond to emotional customer statements nearly as well as human operators, due to machine learning capabilities for sentiment detection [13].

While the current body of knowledge include research on users' perceptions of chatbots in terms of, for example, usefulness and user experience [e.g. 14], there is a lack of knowledge on users' trust in chatbots. This is a critical knowledge gap, as trust has been shown to be a key factor in users uptake of interactive systems [3, 12].

### **2.3 The concept of trust**

Trust is defined by Rousseau et al. as "a psychological state comprising the intention to accept vulnerability based upon positive expectations of the intentions or behavior of another" [17]. Trust is seen as particularly relevant in situations characterized by risk, where the trustor depends on the actions of the trustee [15]. Trust is seen as dependent on a cognitive assessment in the trustor [15], but also as depending on affective [18] and social [1] aspects.

Trust is historically investigated in the context of interpersonal relations, organizations and society [17], and is often described as inducing a sense of belonging [18] and facilitating frictionless interaction and collaboration between humans [1]. Mayer et al [15], presenting one of the leading models of organizational trust, identified three key determinants of trust, that is, the trustee's perceptions of expertise, benevolence, and integrity in the trustor.

While the notion of trust in technology may be seen as controversial [11], there is a rapidly increasing body of research addressing this. For example, in a review article on trust in robots, Hancock et al. [12] identified a range of factors determining such trust grouped in human-related, robot-related, and environmental factors. A much cited framework of trust in interactive systems was presented by Corritore et al. [3], targeting users' trust in websites. In this framework, key determinants of trust were seen as perceptions of credibility, ease-of-use, and risk.

The current literature provides some clues to what may be important factors in determining users' trust in chatbots. However, given that chatbots hold a set of highly particular characteristics, there is a need to explore trust specifically for this interactive technology.

### **3 Research question**

To address the identified gap in current knowledge, the aim of this study was to explore and identify an initial set of factors assumed to affect users' trust in chatbots for customer service. While existing background suggests some factors that may be of relevance, the lack in research on this in the field of chatbots made us choose an exploratory approach. The research question for our explorations was as follows:

*Which factors are relevant to users' trust in chatbots for customer service?*

Our explorations of this question, will enable us to establish a tentative overview of factors that may affect trust in chatbots for customer service. This may, in turn, guide future research and support design and development of chatbots for customer service.

### **4 Method**

In response to the research question, we chose an exploratory research design. Specifically, to gather rich in-depth insight we conducted a semi-structured interview study.

#### **4.1 Participants and study context**

The study participants were all users of chatbots for customer service. To ensure that all participants had recent experiences with such chatbots, they were invited to the study as part of their chat dialogue with one of a small number of customer service chatbots. Invitations were provided as the customer service dialogue was completed.

When accepting the invitation, the participants first responded to a questionnaire on their experiences and perceptions of the chatbot. The findings from this questionnaire will be presented in a later publication. Upon completing the questionnaire, the participants could volunteer for a follow-up interview. All participants indicating such interest (28) were invited to join the study; 14 answered positively to the follow-up communication from the research team. Of these, 13 were included in the final analysis; one was excluded as she was part of a chatbot development project.

The chatbots through which the participants were recruited, were the customer service chatbots of four Norwegian consumer service providers. These providers were chosen because they were advanced in implementing chatbots for customer service.

The Norwegian context arguably is useful for the purposes of this study. The population is relatively advanced in terms of mobile internet and smartphone penetration, and Norwegian service providers are relatively advanced in implementing chatbots for customer service.

All participants were provided information about the study and terms for participation as part of the invitation. All data collection was anonymous, and the participants were at the beginning of the interviews reminded not to disclose personal information. All participants were offered a gift card of 250 Norwegian kroner (approximately 25 Euro), as incentive to participate.

## 4.2 Study material and data analysis

All interviews were conducted on the basis of a predefined interview guide. The guide included open-ended questions on the following topics:

- Customer service chatbot experience
- Perceived benefits of chatbots for customer service
- Perceived challenges or problems with chatbots for customer service
- Factors affecting trust in chatbots for customer service
- Factors affecting future use of chatbots
- Suggestions for improvements in chatbots for customer service

The main topic was factors affecting trust in chatbots for customer service. Here, the participants were first encouraged to reflect freely on trust in chatbots for customer service and factors affecting such trust. Following this, the participants were prompted on a small set of possible factors drawn from the literature on trust in technology including risk, expertise, ease of use, reputation, and human likeness.

The interview guide also included a brief introduction, summarizing the study purpose and terms of participation, and a debrief for the participant to ask questions and make additional reflections. All interviews were conducted in Norwegian. Example quotes presented in the result section were translated to English by the first author.

The interviews were recorded, upon the participants' explicit consent, and transcribed. Analyses were done on the transcripts, following Ezzy's [6] guidelines for thematic analysis. Coding themes were identified, consolidated and applied for coding the data. The data associated with each particular code were then made subject of a final qualitative interpretation. On the basis of this analysis, a set of factors of relevance to trust in chatbots for customer service was established.

## 5 Results

The study participants all had experience with chatbots for customer service. The participants typically had experience with such chatbots a few times (5) or several times (6). However, two of the participants only had the one experience with chatbots for customer service when they were recruited to the study. Half the participants (6) described themselves as more than average technology interested or as advanced technology users.

In the results section, we first provide an overview of the participants' responses to the topics of perceived benefits and challenges with chatbots for customer service. We then go into the topic reflecting the research question – factors affecting trust in chatbots for customer service – before providing an overview of factors affecting future use of chatbots and suggestions for improvements.

## 5.1 Benefits with chatbots for customer service

The main benefit of chatbots for customer service, reported by all study participants, is the opportunity for fast and accessible help and information. The rapid response of chatbots were accentuated by all study participants. For example, as in the following:

*[...] it is really great that you get an immediate response, and not have to wait for a human to answer. (P1)*

Likewise, most participants mentioned the 24/7 access to customer service chatbots.

*Yes, it is really simple. No waiting time. If you are to talk to the employees or the managers, there is often waiting time. But the chatbot always has time. (P4)*

A substantial proportion of the participants also noted as beneficial that the chatbot works well for simple, general questions (6) and provides answers that have gone through substantial quality control (5). For example, as detailed in the following responses:

*For me, this seems to be a good way to get answers to questions that are simple and straight forward [...]. (P8)*

*[The chatbot] is in a way more trustworthy as it does not just give a yes or no answer. Rather, you can see how it interprets the question. And then it will answer on this basis, so accuracy is better. (P5)*

Interestingly, about half the participants reported on the chatbot holding also other benefits in contrast to customer service with human personnel. First, several noted that chatbots may lower the threshold for asking questions (6). Specifically, it was reported that when asking questions to a chatbot one does not feel being judged – even when asking questions that one may consider stupid or silly.

*You can ask really stupid questions, if you are an anonymous customer. When you call customer service you are in a way cautious not to ask too simple or banal questions. But with a bot you are in a way encouraged to ask stupid questions, so that you can be a bit more open. (P5)*

Also, some of the participants noted that since the chatbot is not human they do not feel any time pressure. Hence, they can take the time they feel necessary to formulate questions and read answers.

*I can do this in my own speed. That is, I can use as long time as I want on the questions. (P9)*

## 5.2 Challenges with chatbots for customer service

The main challenge with chatbots for customer service mentioned by the participants (9) was interpretational problems. That is, the chatbot does not always understand what the customer is intends to ask. For example, as in the following participant report.

*It is not always the chatbot understand what I say. And when I, after formulating my question in three or four different ways and the chatbot still does not understand, then I get annoyed. Then it is not very useful and I rather want to talk to a human. (P1).*

Furthermore, several of the participants also noted as a problematic issue that the chatbots as they currently are implemented, does not allow for answering complex questions or questions pertaining to the details of ones personal relationship with the service provider. This issue is in part linked to the limitations in the user intents that the chatbots can identify, but also in the limitations of customer service chatbots that does not access personal data about the customer. As reflected in the following participant quote.

*My experience so far has been positive. But, of course, a chatbot is a chatbot. Which means that it will be somewhat limited what you can get out of it. (P12)*

Some participants also reflected on challenges pertaining, not to the interaction with the chatbot, but to other contextual issues. Such as concern for security and privacy, and also fear for chatbots for customer service being a step towards reduced access to customer service personnel. Concerns for security and privacy focused on the need for service providers to make sure that the chatbot is just as secure as other online services. Concern for reduced access to customer service personnel in the future, was typically voiced as a need to keep access to customer service personnel as an available option also in a future with more efficient chatbots, as there in the foreseeable future likely will be need also for help and support from humans as a complement to customer service chatbots. Not having such access to customer service personnel could be detrimental, as reported in the following quote.

*[Companies with chatbots for customer service] reduce efforts on regular customer service. In total. As the chatbot is not good enough, the level of customer service in total, is reduced. (P7)*

### **5.3 Factors affecting trust in chatbots for customer service**

The key topic of the interviews was the participants' views on factors that may affect their trust in chatbots for customer service. The identified factors may broadly be structured in two high-level groups: Factors that concern the chatbot itself and factors that concern the service context or environment of the chatbot.

Before going into these two high-level groups of identified factors, we take a brief detour into the participants' willingness and ability to reflect on trust in chatbots. This because the notion of users' trust in technology has been contested in the literature [11]. Interestingly, the participants did not report it to be challenging to reflect on trust in chatbots. On the contrary, most effortlessly reported on factors they found particularly important in affecting their trust in a chatbot. The exceptions to this was one of the participants, who started his answer to the question on factors affecting trust in the chatbot with reflecting on the strangeness that he was perceiving the dialogue with the chatbot in a similar fashion with what he would expect from a dialogue with a human customer



service representative. In addition, another participant argued that he likely would never fully trust a chatbot for customer service. Hence, reporting on trust in chatbots for customer service, was found to be easy for the participants.

**Factors concerning the chatbot.** The most frequently mentioned factors affecting trust in the customer service chatbots concerned the chatbot itself. Specifically, the chatbot's quality of interpretation and advice, and also the chatbot's human-likeness, self-presentation, and level of professional appearance. We detail these in the following.

*Interpretation and advice.* Unsurprisingly, the chatbots' ability to correctly interpret the users' questions and requests, as well as its ability to provide helpful and informative responses were seen as a key factor affecting trust in customer service chatbots. This was reported by most participants (9), and was also for many of these the first factor mentioned. The participant reports coded as concerning this factor addressed aspects such as the chatbot's ability to efficiently provide help, its ability to match a question with an relevant response, as well as the answers' having been through thorough quality assurance. For example as in the following report.

*It is the response you get back. That it answers correctly. And gives you relevant information. [...] Being robust and quality assures is the most important. (P4)*

*Human-likeness.* About half the participants also associated the chatbots character as having some kind of personal or relational flair to its style of communication to potentially enhance trust. Some of these participants argued that the chatbot communicating in a personal style with some humor when appropriate, would be beneficial to building trust. Others argued that a human-like style of communication just feels better, and that this therefore will be beneficial to trust. Yet others accentuated the benefit of the chatbot communicating in a polite and humanlike manner. The human-likeness was reported to be dependent on the communication style, but also other aspects such as the chatbots name and avatar image.

*I know it is a robot, but I would like it to have, so to say, personal. To have a twinkle in its eye, not just pushing fact-based information, but to have a sort of human language or tone of voice. (P1)*

Three of the participants, however, argued against the potential benefit of human-likeness for trust in chatbots. Two of these argued that while human-likeness could improve the user experience of the chatbot, it would hardly affect their trust in the service. The third suggested that in some contexts, a too humanlike chatbot could even reduce levels of trust, with reference to the uncanny valley phenomenon where a too human-like robot may induce a feeling of creepiness in the user.

*Self-presentation and professional appearance.* Some of the participants suggested that the chatbots self-presentation would be important to them trusting it. Specifically, that the chatbot clearly communicates what it can do, and how it can help. Such a presentation was argued to be particularly helpful in the introduction of the dialogue.

And, just as importantly, it was reported to be important the chatbot is open and honest regarding its limitations. The importance of the chatbot's self-presentation was, for example, argued in the following quote.

*[The chatbot] seemed honest in a way. [...] This I can help you with, but not this. That is, it clearly communicated what it could do. (P9)*

Some of the participants also argued that their trust in the chatbot would depend on the degree to which it appeared as having been thoughtfully developed. This could concern the overall visual design of the chatbot, but also the degree to which it was seen as using adequate and correct language. As noted in the following quote.

*[The chatbot] should seem to be well made, and not be plagued by typos, for example, or poor grammar. (P8)*

**Factors concerning the service context.** The participants also reported on a number of factors seen as affecting trust that did not concern the chatbot as such but rather the overall service context. Factors concerning the service context were somewhat less frequently reported than factors concerning the chatbot, but nevertheless this was a substantial part of the user feedback. These factors included the brand hosting the chatbot, perceived security and privacy, and also perceived risk.

*Brand.* Nearly half the respondents reported the brand hosting the chatbot as being important to trust. A chatbot for customer service is typically developed to support customers of a particular brand, and users' perceptions of this brand was argued to be a key determinant of trust. Brand was seen as potentially affecting trust through branding of the chatbot, but also by the chatbot being accessed from the brand webpage. As noted by one of the participants:

*Trust for me primarily is in the brand [...] which I already trust as a service provider. (P13)*

*Security and privacy.* A substantial number of the respondents also reported the stated or perceived security and privacy measures in the chatbot to be important for trust. It was noted that the user needs to be certain that the security level of the chatbot is sufficient, in particular if the chatbot is to support transactions and not just provide answers to frequently answered questions. When supporting transactions, it was also argued as necessary that the responsibility in the case the chatbot failed should be on the service provider, not the user. The importance of security in the chatbot was, for example, voiced in the following quote.

*The chatbot needs to be safe to use. When you start using the chatbot you need to be convinced that the security level is sufficient. (P4)*

The respondents also argued that it would be important for their trust levels how their personal data from the interaction with the chatbot is used and stored. In particular, it was reported that the chatbot should make clear what is stored, and preferably store as little personal data as possible.

*Risk.* Finally, a few participants noted that the perceived risk associated with using the chatbot would be important to whether or not they would trust it. As noted by one of the participants:

*If [the objective of the interaction] was very important to me, I would check also with another source. [...] I should not trust it, at least not 100%, if it was important. (P2)*

**Summarizing factors affecting trust.** All factors identified by the participants, both those concerning the chatbot and those concerning the service context, are summarized in Table 1. Reported frequencies in the table correspond to the number of participants addressing a particular factor as potentially affecting trust.

**Table 1.** Factors perceived to affect trust in chatbots for customer service

High-level group	Factor name and description	Frequency
Factors concerning the chatbot	<i>Interpretation and advice.</i> Quality in interpretation of the user request and advise in response to request.	9
	<i>Human-likeness.</i> The chatbot's appearance as human-like, personal, or polite	6
	<i>Self-presentation.</i> The chatbot's communication of what it can do and its limitations.	3
	<i>Professional appearance.</i> The chatbot's appearance as being thoughtfully developed, with correct spelling and grammar.	2
Factors concerning the service environment	<i>Brand.</i> The effect of the brand of the service provider hosting the chatbot.	5
	<i>Security and privacy.</i> The importance of security and privacy aspects of the service.	5
	<i>Risk.</i> The perceived risk associated with using the chatbot.	2

#### 5.4 Factors affecting future use and suggestions for improvement

Towards the end of the interview, the participants were asked about factors which in their view could affect their future use of chatbots for customer service. Specifically, factors that could make them regular users of chatbots for this purpose.

The most important factor for future use, mentioned by ten of the participants, was seen as the chatbots ability to understand and provide adequate help and information. This resembles the participants' answers for what is seen as affecting their trust levels. For chatbots to be frequently used, and also to be trusted, they need to correctly interpret the users' questions, understand the users' needs, and provide the needed assistance. This view is reflected in the following user quote.

*If the chatbot solves my problem I will come back. Because then it is much more efficient that waiting in a phone or chat que to speak with an employee in the company. (P4)*

The participants specifically noted that the efficiency in interaction would be decisive for their future use of customer service chatbots. Specifically, it was argued that the chatbot needs to be seen as a more efficient channel of support than other available options, as suggested in the following quote.

*I would need to experience more often that the chatbot is a more efficient channel than the alternatives. (P1)*

It was also suggested that more frequent future use would depend on the accessibility of the chatbot. That is, whether or not the chatbot was promoted as an alternative to regular customer service.

*If the chatbot was made available as a clearly visible option on the home page of the service provider, for example the webpage of the tax authority, it may well be that I would use it instead of trying to find an answer through search. (P6)*

However, five of the participants also noted that them becoming regular users of chatbots for customer service in part depended on their own interest in technology and new services. That is, their future use of chatbot may not only depend on the chatbot as such but also on themselves as users.

*I have very strong belief in this. I am a user because I want to show my support to the technology as I am quite interested in information technology. (P5)*

## **6 Discussion**

We have presented the key findings from an interview study concerning user trust in customer service chatbots. This knowledge is an important basis for future chatbot development, as trust is a determinant of user uptake of technologies and services [3].

In the following, we will discuss our findings and their theoretical and practical implications. Echoing the structure of the results presentation, we will first discuss the perceived benefits and challenges with current chatbots for customer service before discussing the findings that may shed light on which factors that affect trust. We will also address the findings pertaining to future chatbot use. Finally, we will address the study limitations and make suggestions for future research.

### **6.1 Chatbots represent benefits and challenges**

The participants reported a number of benefits of chatbots for customer service. These benefits were in part corresponding with previous research on users' motivations for chatbot use [2], suggesting that the main motivation to use chatbots is productivity. That is, the promise of efficient assistance with simple requests. Specifically, the benefits of not having to wait in queue for assistance by customer service personnel and 24/7 accessibility were accentuated as major benefits.

At the same time, chatbots' inability to address more specific or complex requests was regarded a major limitation. While this finding may be seen as an artefact of chatbots being an emerging technology for customer service, it also serves as a re-

minder of the importance to clearly inform the user on what the chatbot can and cannot do. Failure to do so, may lead the user to believe that the chatbot is capable of more than it actually is, which in turn may lead to frustration and reduced willingness to continue using chatbots for this purpose [14].

Interestingly, productivity was not seen as the only form of benefit in chatbots for customer service. The participants also noted other, perhaps more surprising, benefits. Among these, we find it particularly noteworthy that some users regard the machine nature of chatbots as a benefit. Customer service provided by a machine may be seen as relaxed, as the user can take the time needed to process feedback and formulate questions. The user may also see it as less embarrassing to ask questions about presumably simple issues, as the chatbot is seen as non-judgmental. These potential benefits correspond to findings in previous research, where users of therapeutic chatbots may find it easier to open up and talk about difficult topics with these than with a human therapist [7].

The reported benefits and challenges, however, clearly indicates that chatbots currently are an emerging technology for customer service purposes. The main reported challenge concerned the chatbot's ability to correctly interpret the user's request. This resembles the early days of website design, when a main challenge of ecommerce websites was the prevalence of usability problems [16]. Hence, while the reported benefits in part may be seen as expected benefits of near future chatbots, the challenges may be seen as actual challenges in current chatbots for customer service.

## **6.2 Trust affected by factors in the chatbot and in the service context**

While there exists a substantial body of knowledge on users' trust in technology, we currently lack insight into the factors affecting trust in chatbots. The main contribution of this study is to provide a basis for establishing such insight.

While the notion of trust in technology has been seen as controversial [11], it may be noted that the participants of the study seemed to consider the notion of trust in chatbots a relevant and timely topic.

The identified factors seen as affecting trust in chatbot for customer service to some extent corresponded to factors in the existing literature. For example, the participants' accentuation of the importance of quality in interpretation and advice is partially overlapping Corritore et al.'s [3] concept of credibility. At the same time, the identified factors also clearly represent something highly specific for chatbots. For example the identified link between the chatbot's human-likeness and trust is a factor that has received less attention in the literature. Possibly, the fact that the interaction with the chatbot is conducted in a manner similar to the interaction with a human being, makes the factor of human-likeness particularly important.

The identified factors also suggest that trust in the chatbot not only is the result of perceived chatbot characteristics. Rather, the service context in which the chatbot is situated is seen as important. In particular, it is noteworthy that the brand hosting the chatbot is critical to trust in the chatbot. If the chatbot is hosted by a trusted provider, the user is more likely to trust also the chatbot. That is, the trust in the provider spills over on the chatbot. Also contextual factors such as perceived security and privacy,

and also perceived risk, was seen as decisive for users' trust in the chatbot. Hence, to fully understand trust in chatbots it may be important not only to consider the chatbot in isolation, but also to consider the chatbot as part of a broader service context.

### 6.3 Implications for future design of customer service chatbots

While this study is only a first step towards understanding users' trust in chatbots for customer service, a number of tentative implications for future design of such chatbots may be drawn. Such implications may be drawn in part on the participants' responses to the questions on factors affecting future use and suggestions for improvement, and in part on the findings based on other parts of the interviews.

In the following, we list what we see as five key implications for future design of customer service chatbots, relevant for designers and developers of such chatbots.

1. **Prioritize efficient service provision.** The key determinant of users' trust in chatbots for customer service, as well as their likelihood of becoming regular users of such chatbots, is efficient service provision. Users should consistently experience the chatbot channel as superior on efficiency when choosing this option.
2. **Be transparent on the chatbots features and limitations.** Chatbots are not able to handle all customers' needs and wants, but they may be an efficient alternative for some. Hence, it is critical that the chatbot clearly communicates both what it can do, and what it cannot do, to the user. This will help the user in choosing the chatbot channel when this actually is the most efficient option.
3. **Strengthen the user experience through human-like conversation.** A courteous, personal and human-like appearance may enhance user experience and trust in the chatbot. Such human-likeness should not negatively impact efficiency, but may provide an additional experiential layer – similar to that of a pleasant and polite customer service representative.
4. **Leverage users' trust in the brand.** Users' trust in the brand likely spills over to the chatbot. Hence, strategic use of branding and hosting of the chatbot may positively affect trust. At the same time, a poorly executed chatbot design may, likewise, reflect negatively on the brand.
5. **Demonstrate that security and privacy are prioritized.** Security and privacy are important to users. The design and dialogue of the chatbot should make it clear that security and privacy are top priorities also for the chatbot channel.

### 6.4 Limitations and future research

The aim of this study is to provide an initial basis for understanding trust in chatbots for customer service. This aim has been pursued through an exploratory interview study, a consequence of which are some important limitations. In this section, we will in particular address three such limitations.

First, the study is relatively small scale, involving 13 users of chatbots for customer service. This limitation allowed us to explore a range of factors that may affect trust in such chatbots. At the same time, the generality of the identified factors may be

challenged. Future research is needed to validate and expand on the findings of this study, through involvement of a larger number of users.

Second, the study is conducted in the context of a specific context; four Norwegian customer service chatbots. This limitation allowed us to make an in-depth analysis of user experience and trust for these chatbots. Furthermore, the choice of context allowed us to conduct the investigation in a market with high levels of digital technology uptake, which is beneficial for the relevance of the findings. At the same time, the study should be extended with similar data collections in other markets.

Third, the exploratory aim of the study implied that the data collection and analysis was not guided by specific theoretical constructs of trust in chatbots. This limitation is due to the study being an initial step towards increased knowledge on this topic. Future studies will benefit from being guided by a theoretical framework. Hopefully, the finding from this study may serve as a basis for establishing such a framework.

## 6.5 Conclusion

We have presented an exploratory interview study, shedding light on the factors affecting users' trust in chatbots. The identified factors concern not only the chatbots, but also the service context in which the chatbots reside. The study findings are offered as a first step towards a theoretical framework of trust in chatbots for customer service. The findings also suggest a number of implications for designers and developers of such chatbots. To fully realize the potential in chatbots for customer service, chatbots need to be trusted by users. We hope that this study motivates future research within this important field of interest.

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