

Organizational Factors Affecting Successful Implementation of Chatbots for Customer Service

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ABSTRACT

The implementation of chatbots for customer service has primarily been studied as a technological installation with focus on the user and technical aspects of the implementation. Therefore, this research aims to fill in the gap in the existing literatures by addressing: 1) What motivate organizations to deploy chatbots for customer service, 2) How organizations define ‘successful implementation of chatbot’, and 3) Which and how organizational factors affect the implementation process. To meet the research objectives, an exploratory research design was chosen, where fourteen semi-structured interviews of chatbot-related resource persons in six Norway-based organizations were conducted. Interview data was analyzed using Template Analysis-approach of Thematic Analysis. The results show that most organizations were primarily motivated by the need to digitalize their businesses, the desire to improve their customer experience through better and faster services, as well as costs reduction. ‘Successful Implementation’ was often defined through a set of criteria such as percentage of successful issue resolution, customer satisfaction level, user rating and feedback, and reduction in customer service traffic. Five organizational factors affecting the successfulness of chatbot implementation were identified: 1) works and team organization, 2) change management, 3) competencies and competency acquisition, 4) organizational resources, and 5) performance measures. The findings of this research highlight the importance of non-technical aspects of chatbot implementation, in particular, the importance of organizational preparedness to support and ensure successful implementation of chatbot.

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I have always felt intrigued by chatbots and its increasing ability to truly mimic human interactions. This research has given me the opportunity to learn more about chatbots in the context of organizational psychology. Therefore, I would like to express my gratitude to my external supervisor, Asbjørn Følstad, who had introduced me to the SINTEF's Chatbots for Loyalty initiative and inspired me to pursue my interest in chatbots. Asbjørn has been nothing but supportive and enlightening throughout the writing of this dissertation. Your meticulous guidance, engagement and insightful conversations have been the source of my confidence to carry on with the project. I would also like to thank Cato Alexander Bjørkli, for his supervision and motivating words. Your knowledge and excellent critical thinking have helped me tremendously.

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I. INTRODUCTION

Since the 2016 ‘year of chatbot’ (McTear, 2017), there has been a substantial increase in business interest for customer service chatbots continue to see a rapid uptick (Nordheim et al. 2019). Chatbots (or conversational AI) are machine agents with which users interact through natural language dialogue" (Følstad & Brandtzaeg, 2020). Chatbot efficiency has increased substantially since the first chatbot Eliza was presented in 1966 (Weizenbaum, 1966) and chatbots have gradually become an integral part of customer service in the digital era. A recent survey indicates that a substantial percentage of customers will always choose a chatbot over human customer service personnel if it saves them 10 minutes (Usabilla, 2018). In addition, more customers appear to perceive businesses that use chatbot as more innovative and efficient (PSFK, 2018). In fact, Gartner (Goasduff, 2020) predicts that in 2022, 70% of global customer interactions will involve AI-powered technologies including chatbots, a notable increase from 15% in 2018.

In recent years, the use of customer service chatbots has expanded beyond answering customer queries. For instance, Bank of America has used its chatbot Erica¹ to drive sales by offering clients personalized guidance in managing their finance. To realize the potential benefits of chatbots, businesses and researchers race to find the answer to “What is a good chatbot?”. In the customer service context, the definition of good chatbots is rapidly changing as technology develops as chatbots move past the conventional ‘informational chatbots’ that are designed to answer simple Question and Answer (Q&A). But does it suffice to have a ‘good chatbot’?

How organizations define ‘successful implementation of chatbot’ may depend on the nature of their business, short- and long-term organizational goals and visions, etc. Customer satisfaction is usually just a part of organizations’ definition of “successful implementation of customer service chatbot”. In order to achieve a successful implementation, factors other than those related to the design and technical aspects of the chatbot must also be taken into consideration. Gulla (2012) found that 54% of IT project failures were attributable to poor project management and only 3% were related to technical challenges.

¹ <https://promo.bankofamerica.com/erica/>

Therefore, while the deployment of customer service chatbot may not involve organization-wide technology overhaul, it still requires the support of multiple critical success factors to ensure the implementation of chatbot serves its full purposes. This study will focus on the organizational factors that affect successfulness of chatbot implementation.

Research interests in chatbots have grown substantially in recent years, marked by sizable increase in investments in conversational AI by companies like Facebook, Microsoft and Google since the year 2016 (Dale, 2016). There has been a marked increase in literature on chatbots focusing either on the technical aspects and features of chatbots (e.g. underlying algorithm, interface, quality of communication) or user experience and preferences (e.g. the effect of persona, emotions during interaction with chatbot). However, only a handful of studies have examined chatbots from organizational perspective. Ivanov and Webster (2017) studied how the deployment of chatbots and other forms of artificial intelligence in the tourism industry posed new practical challenges, such as resistance to change and reengineering of service processes. Larivière et al. (2017) examined the changing roles of employees and customers as chatbots and other forms of artificial intelligence flourish. Currently, no research has addressed which organizational factors may facilitate or impede the development and deployment of chatbots for customer service, and there is also a lack of knowledge on how the implementation of such chatbots affects organizations.

Motivated by the gap in current knowledge, this research sets out to examine the implementation of customer service chatbots from organizational perspective, guided by the following research questions:

- 1) What motivate organizations to deploy customer service chatbots?
- 2) How do organizations define successful implementation of chatbot?
- 3) Which organizational factors affect the successfulness of chatbot implementation?

The findings of this study will contribute to the existing research on chatbots by providing new insights into the organizational aspects of chatbot implementation, thereby leverage theoretical background from the field of work and organizational psychology to contribute to the body of knowledge of the cross-disciplinary area

chatbot research. The findings may also help organizations in laying better groundwork before committing to chatbot for customer service and avoid the common pitfalls in chatbot implementation.

The thesis is structured as follows: Section II reviews existing literatures on chatbot for customer service, technology implementation, organizational change and change management; Section III explains the research and analysis methodology; Section IV presents and explains the findings of the study; Section V discusses the theoretical and practical implications of the findings, the limitations of the thesis and recommendations for future research.

II. BACKGROUND

In this section, I will provide an overview of the background customer service chatbots and its recent trend. Following it, I will present some reasons behind failures of technology implementation based on current literatures. I will then discuss how the implementation of chatbot for customer service differs from a typical technology project. Next, I will present some existing frameworks for managing organizational impacts of technology implementation.

Chatbots for Customer Service

The digital era has reshaped customer behaviors and preferences. Modern customer service is characterized by omnichannel interactions and ‘hybrid’ of digital service and human touch. Since ELIZA made its debut in 1966, the use of chatbots in commercial setting has increased drastically in the past decade. Initially created by Joseph Weizenbaum of MIT to mimic human verbal interaction (Weizenbaum, 1966), ELIZA has inspired scientists’ desire to create a machine that can simulate human conversation, and ultimately, reason and present knowledge like human will do. Subsequent chatbots like ALICE (Artificial Linguistic Internet Computer Entity), IBM’s Watson, Apple’s Siri and Amazon’s Alexa have moved beyond rudimentary conversations based on predetermined set of responses to sophisticated virtual assistants capable of making algorithm-based recommendations and executing simple commands from users.

Banking, e-Commerce, retail and healthcare sectors are among the frontrunners in the deployment of chatbots for customer service. It is anticipated that the use of customer service chatbots will generate substantial business cost savings through reduction in labor costs. Furthermore, a well-designed and implemented chatbot is expected to enrich customer experience and optimize internal operations by enabling assisted self-service, conversational commerce, intuitive onboarding, enhanced profiling, co-automated workflows and insight mining (PSFK, 2018). Officially launched in 2017, KLM and its cross-platform Blue Bot (BB)² has gone beyond simple Q&A, BB allows customers to book a ticket in a conversational way on messenger and offers smart personalized packing assistance through Google Assistant. The success story of KLM's BB is definitely inspiring.

The case of chatbot for customer service in Norway is well-suited for the purpose of this study. Many of the country's larger financial organizations and government municipals began implementing chatbots in 2018 as part of their ongoing digitalization strategies (Iversen, 2019). The rise in the intention to implement customer service chatbots have also led to increase in the number of domestic chatbot platform vendors in recent years. Therefore, while it may be too early for many organizations to conclude whether they have truly been successful in chatbot implementation, the experiences of these organizations may provide valuable insights and help other organizations in avoiding the common pitfalls in the implementation process.

Why Do Technology Implementation Fail?

A survey of about 1,000 executives done by Capgemini SE in September 2019 (Taylor et al., 2019) found that 76% of the respondents have seen quantifiable benefits of chatbot implementation, such as up to 30% reduction in customer service costs and higher net promoter score (NPS). However, the same research also indicates that less than 30% of the surveyed organizations have mastered the organizational capability (for example, employee awareness of the existence of chatbot, enterprise data and system integration, supportive organizational structure) required to reap the full potentials of chatbot technology.

² <https://bb.klm.com/en>

There are countless numbers of new technologies being released and implemented in organizations in the era of business digitalization. However, many technology implementations have failed to deliver the expected results. To put this in perspective, a recent survey by the International Data Corporation (Jyoti, 2019) indicates that approximately 25% of companies encountered up to 50% failure rate in their AI adoption efforts, and the lack of skilled staff and unrealistic expectations were identified as the top reasons for failures. Their findings further corroborate the complexity of the implementation of new technology and the importance of non-technical success factors.

Jones et al. (2001) argue that to effectively utilize new technologies, organizations need to consider all of the factors involved in the implementation process, such as new technology characteristics, organization structure, task factors, and environmental characteristics, as well as the human elements involved. The authors further suggest that organizations should take a holistic “big picture” approach in new technology implementation and pay attention to the interactions between all factors that exist. The findings of Alami (2016) in-depth investigation of failed IT projects, also highlighted the importance of non-technical success factors, namely a balanced ecosystem (ecosystem is defined as “structure that become manifest in the interdependencies between stakeholders and resources), clear roadmaps for transformation and sound project management practice.

In most instances, implementation of new technology initiatives will inevitably lead to some changes in the organization. While the scale of such changes varies depending on the pervasiveness and business impacts of the said technology, many researchers advocated the need for organizations to develop appropriate change management strategy. Let’s take the case of Enterprise Resource Planning (ERP) software implementation. A study by Deloitte Consulting (1999) shows that change management is the most important human-related success factor in the implementation of ERP software. Ahmed et. al (2006) found that change management initiatives have moderated the relationship between resistance and user satisfaction in the implementation of Enterprise Resource Planning (ERP) system. Furthermore, their findings also indicate that change management has direct positive effect on user satisfaction. Legris and Colletette (2006) argue that passively waiting for people to

gradually adapt to changes is counterproductive and may lead to poor implementation results.

Besides change management strategies, numerous organizational factors also affect the outcome of technology implementation. By studying the adoption and assimilation of technological innovation in healthcare organizations, Robert et al. (2009) posit that organizational antecedents for innovation in general (organizational antecedents may include factors such as slack resources, organizational structure and autonomy, culture, pre-existing knowledge base and technology, proactive leadership, etc.), organizational readiness for a specific innovation, as well as the interactions between various determinants will affect the outcome of new technology adoption and assimilation.

The cost of investment in chatbot can range from few thousands dollars to millions dollars, depending on the industry, company size and requirements of the chatbot. For instance, an average Facebook Messenger chatbot used by many small e-Commerce enterprises costs between \$3,000 to \$5,000 (Ismail, 2018), while Bank of America has reportedly spent 2 years and approximately \$30 million to bring its chatbot ERICA to market (Mehta, 2019). Furthermore, a chatbot requires continuous maintenance and improvement works even as it enters operational phase. Despite massive leap in conversational AI technology, Gartner (2019) predicts that 40% of chatbots launched in 2018 will have been abandoned by 2020. Therefore, it is imperative for companies to ensure that they have the organizational capability to support successful implementation of chatbot and its subsequent development.

In the next section, I will discuss whether the implementation of customer service chatbot can be viewed as purely technology-driven project.

Is Chatbot for Customer Service Just a Technology Project?

The implementation of customer service chatbot somewhat differs from traditional IT project. Firstly, although some organizations prefer to build their own chatbot platform, the prevalent trend is to acquire the chatbot platform from a third-party vendor. As the market for chatbot platforms becomes increasingly saturated, vendors are no longer competing solely on the technology front (e.g. Natural Language Processing capability, advanced audit trails, high compatibility with the existing

systems, etc.). Additional features offered by chatbot vendors, such as collaborative creation and training, assisted system integration and all-round post-sales supports, have enabled companies to reduce the requirement for technology resources during the implementation and subsequent maintenance of chatbot. Many vendors boast their user-friendly interface as “no-code conversation builder”. In practice, this means that once integrated into the organization’s IT system, the importance of technological elements of the implementation is de-emphasized and in many cases, the quality of the conversations fed into the chatbots largely determine the quality of the customer interactions.

Secondly, chatbot is not always managed as a technology project. According to the Project Management Body of Knowledge (Project Management Institute, 2017), a project is characterized as “temporary” and “unique” (i.e. tailored to meet specific result, distinct from daily operations). Contrary to this characterization, chatbots are usually seen as a ‘long-term commitment’ (Blum, 2019). Furthermore, as conversations and data are seen as the main substance of a chatbot, in some organizations, chatbot may fall under the purview of the business unit responsible for chatbot contents management (e.g. customer service department, marketing and sales department, claim department, etc.) and managed as part of the ongoing operational efforts.

Regardless whether an organization chooses to view chatbot implementation as a technology project or operational efforts, the deployment of chatbot in customer service capacity may lead to inevitable changes in the organization and it will undergo different phases before it reaches the point of maturity. How organizations anticipate and manage these consequences, and how they adapt to the changing requirements during different phases of chatbot implementation may affect the results of the implementation.

Managing Organizational Implications

In their framework for digital innovation strategy, Nylén and Holmström (2015) suggest that uncertainty occurs in three dimensions, namely the product itself, its digital environment and organizational properties, as such, firms need to address an array of issues besides those related to user experience and behaviors, such as

learning, role development, as well as the time, space and coordination within the organization to deal with overlaps and waste.

Many existing models of organizational change management may serve as useful guidance in digitizing customer service. Among others, Vollman's (1996) model of transformation imperative provides a good depiction of the intricacies of chatbot implementation. The eight-by-six matrix of Vollman's model captures the organizational dimensions and resources, as well as critical areas of considerations imperative to organizational change. The eight rows in his model consist of strategic intent, competencies, processes, resources, output, strategic responses, challenges and learning capacity. The six columns comprise of organizational dimensions and resources, namely culture, configuration, coordination, people, information and technology. In the chatbot context, organizations can use this matrix to ask questions critical to the implementation process, for example, what kind of competencies are required (competencies), whether the existing organizational structure is preventing full utilization of chatbot (configuration), how to ensure the relevant business units are collaborating during the implementation (coordination). Vollman (1996) suggests that organizations need to address and prioritize the correct issues in order to succeed in any transformational effort.

Most technology implementation goes through its own distinctive lifecycle. The significance of different phases of the implementation process on the implementation outcome may differ, and the resources and efforts requirement in each phase may also vary. Peslak et al. (2008) postulate that the four phases of ERP implementation (preparation and training, transition, performance and usefulness, and maintenance) have different significance on the user acceptance and preferred use. The findings of Parr and Shanks (2000) indicate that different critical success factors come into play at different phases in business project implementation. Breaking down chatbot implementation into different phases of development may further our understanding of organizational impacts of chatbot implementation and how they should be managed.

Two other facets of technology implementation are the impacts of the technology on employees' performance and sustainable competitiveness of the organization. While digitalization of customer service may reduce the number of inquiries that need to be

handled manually, it also inevitably leads to the increase in omnichannel customer interactions, as well as changes in work tasks that can lead to increasing need to multitask. Increase in multitasking may affect the employees' Mental Workload (MWL). Young and Stanton (2001, p.507) defines Mental Workload as "the level of attentional resources required to meet both objective and subjective performance criteria, which may be mediated by task demands, external support, and past experience". Simply put, MWL is "any measure of the amount of mental effort required to perform a task" (Stramler, 1993, p. 202). According to Wickens (2002) Multiple Resource Theory, individuals are capable of multi-tasking until such time the tasks' demands exceed available resources (e.g. working memory capacity). The implications of chatbot implementation on employees' mental workload (MWL) and job performance remain largely unknown.

Beyond the immediate benefits of new technology initiative, Doherty and Terry (2013) suggest that organizations should also use new technology initiative to attain sustainable competitive advantage either by direct leveraging of the initiative or by using the said initiative to leverage organizational resources. In the context of chatbots, besides aiming for a faster response rate and lower customer service costs, chatbots may also contribute to the organization's sustainable strategic advantage by leveraging existing organizational resources, such as human and informational resources.

The Background section elucidates some literatures that may help to further our understanding of chatbot implementation. As such, to a certain extent, the interview guide and data analysis of this study are theoretically informed (but not theoretically predetermined) by existing theories on successful technology implementation and change management.

By approaching the issue of chatbot implementation from the organizational perspective, this study aims to learn from participants' experience in implementing chatbot solution and thereby 1) fill in the gap in the existing literatures on chatbot that have insofar focused primarily on the technical and the user perspective, 2) identify the motivations behind deployment of customer service chatbot and the definition of successful chatbot implementation, 3) identify organizational factors that affect the successfulness of chatbot implementation. Having said so, this study is not intended to

provide conclusive solutions to how organizations should approach the implementation of customer service chatbots.

III. METHOD

The Project

This master thesis was conducted in collaboration with SINTEF as leader of an initiative named Chatbots for Loyalty. The master student conducted the thesis project definition, formulation of research questions and research design, preparation of the informed consent form and drafting of the interview guide, application for NSD (Norwegian Centre for Research Data) research approval, participant recruitment, interviews, transcriptions and data analysis. The leader for Chatbots for Loyalty initiative, Asbjørn Følstad, provided support in initiating participant contact, advice on study design, feedback and reflections during the analysis process and review of the manuscript.

Research Design

An exploratory research approach was chosen since there is a lack of research on the implementation of customer service chatbots from multiple perspectives within various organizations. An exploratory approach implies that the task of the study is to “pick out the crude outline of the object later to be more exactly defined” (Dollard, 1949, p.32). As such, the organizational factors identified through this study may be used later to form a theoretical framework to enrich the knowledge in the related field and support organizational efforts in future implementation of chatbots. In contrast to confirmatory research, exploratory study does not aim to test any hypotheses. Instead, exploratory study attempts to find out how much and how well a theory (or a hypothesis) can explain a phenomenon, and how meaningful an explanation is (Reiter, 2017).

Therefore, this study has set out to explore how well existing theories related to change management, technology implementation and organizational resources explain the implementation of customer service chatbots.

This study assumes a subtle realist position that acknowledges that the observations made on independent phenomena (in this case, the implementation of chatbots and its

related organizational changes) are not free of the researcher’s and the participant’s subjective perceptions (Kirk & Miller, 1986; Hammersley, 1992).

Participants and Recruitment Process

To provide richer data from a relatively small sample size, purposive sampling method was used in the participant selection. Two main sampling criteria used were: 1) customer service constituted an essential component of the participating organizations; 2) the organizations had used chatbot for customer service. Additional criteria were used in the purposive sampling to ensure variability in terms of: 1) the length of time of chatbot usage, 2) the type of businesses of the organizations, 3) the chatbot platform provider used by the organizations.

Six organizations participated in this study and a total of 14 interviews were conducted. From each organization, 2-4 resource persons took part in the interviews. These resource persons represented different functions within the chatbot team. All organizations that participated in this study are large organizations with total number of employees exceeding 1000 personnel. Table 1 summarizes the type of business of these organizations, the number of participants from each organization (coded as Organization A – F) and in which capacity they were working, as well as which platform provider they were using (coded as Vendor A, B and C).

Organizat ion Code	Type of Business	Number of Participants	Participant Role	Platform Provider
A	Bank and finance	4	Project lead, product owner, head of customer service, product owner, customer service advisor/ AI trainer	Vendor A
B	Media and communication	2	Product owner, AI trainer	Vendor A
C	Public sector	3	Project lead, project team member, head of customer service,	Vendor A
D	Bank and finance	1	Technological strategist	Vendor A
E	Services	2	Product owner, middle office/AI trainer	Vendor B
F	Media and communication	2	Product owner, head of customer service	Vendor C

Table 1: Details of participants and participating organizations

The participating organizations had been using customer service chatbot for up to 2.5 years at the time of data collection. Data collection was conducted in the period August–October 2019. All interviews were recorded and transcribed - except one interview, which was not transcribed due to technical error in the audio file. The analysis of the non-transcribed interview was based on the interview notes.

Interviews and Data Analysis

Interviews

Semi-structured interview was chosen as data collection method upon taking into considerations the compatibility with the research objectives and the preferred data analysis method, as these three elements are dependent on one another in qualitative research (Willig, 2008).

The interview guide (see Appendix I for the complete interview guide) was designed to cover:

- 1) what motivated the organizations to deploy chatbot for customer service
- 2) how organizations define successful implementation of chatbot
- 3) which organization factors affected the implementation of chatbot.

As the study targeted organizations in Norway, all interviews but one were conducted in the Norwegian language. Twelve interviews were conducted face-to-face at the participants' business premise, and two were conducted virtually. Duration of the interviews ranged between 45 minutes – 80 minutes. While exploratory in nature, the interview guide also drew on existing studies and current theories on technology adoption and organizational change. The elements of Vollman (1996) eight-by-six transformational imperative matrix, such as strategic intents, competencies, processes, culture, resources, information, technology, were used as prompts and probes in the interview guide. For instance, many participants perceived the term “organizational factors” as a rather abstract terminology, the use of such prompts and probes helped to elicit more elaborations from the participants. As most of the chatbot implementation projects in Norway involve commercial off the shelf installation, I have also borrowed terminologies from Peslak et al. (2008) four phases of ERP Software Implementation – preparation and training, transition, performance and usefulness, and maintenance – to help participants in describing how chatbot deployment transitions from initiation

to operational stage.

In addition, the inputs from two preliminary informal interviews with employees of a chatbot vendor and an information technology consultancy firm were also taken into account when formulating the interview guide.

Data Analysis

Audio data from the interviews were transcribed using non-verbatim transcription method upon taking into consideration the purposes of this study and the preferred analysis method. Non-verbatim transcription captures the fundamental meaning behind the spoken statements, correcting for grammatical errors, background noises, repeated words, false starts, etc. The codebook approach (Crabtree & Miller, 1992; Braun & Clarke, 2019) of thematic analysis, specifically, *Template Analysis* (King, 2012; Brooks et. al, 2015) was chosen as it was deemed more compatible and practical for the purpose of this study.

Brooks et al. (2015) defines Template Analysis as “a form of thematic analysis which emphasizes the use of hierarchical coding but balances a relatively high degree of structure in the process of analyzing textual data with the flexibility to adapt it to the needs of a particular study.” While Braun and Clarke’s Reflexive Thematic Analysis conceptualizes themes as meaning-based patterns and focuses on the interpretation of the data, Template Analysis does not insist on an explicit distinction between semantic codes and latent codes, descriptive and interpretative themes (Brooks, 2015). Demarcation of researcher engagement afforded by this method is considered desirable here, as it allows the study to claim some validity through adopting a subtle realist stance (explained in the Research Design). Such pragmatic approach to data analysis enables the study result to maintain its relevance in similar contexts.

In essence, this technique involves development of a coding template based on a subset of data, followed by an iterative process of revising and refining the template upon application to further data. Template Analysis of the interview data was carried out using the 6-step procedure outlined in King (2012) and Brooks (2015): 1) data familiarization, 2) preliminary coding and identification of *a priori* themes, 3) organizing the emerging themes into meaningful clusters and hierarchy, 4) defining an initial coding template, 5) applying the initial template to further data and revise as necessary, 6) finalize the template and apply it to the full data set. Since the data set

was not overwhelmingly large, the transcripts of the interviews were coded and organized into themes in excel spreadsheet.

Preliminary coding was done based on the data from three interviews of three participants from different organizations. A total of 82 preliminary codes and 12 *a priori* themes were generated (see Table 2 for examples of the preliminary coding). The *a priori* themes included themes that address the aim of this study to identify organizational factors affecting implementation of chatbot, as well as themes derived from existing literatures on technology implementation and change management.

Transcripts	Code
Q: It could be culture, or other organizational factors like leadership, teamwork or something else.	
A: I think as with most organizations that are successful in chatbot implementation, it should have like a mindset that they need to have some funding allocation and empower their employees into making good decisions and thinking hard about the problems that our customers have, the problems that we have, looking out for what's out in the market, being outward facing, all of those are really important	Attitude towards new technology
	Resource allocation
	Autonomy
	Setting scope of the chatbot
	Learning from others' experience
A: And also obviously to be able to do that, you need to have the right leadership and management, and being brave to actually say that "let's go ahead and try this, you have this amount of money, spend it wisely and then come back to me with something relevant, and new and different. It could be a new concept or could be something else. The important thing is to quickly get some form of feedback from the relevant stakeholders, which typically is the customer, but it could be obviously, as we are banks, there are a lot of stakeholders, regulators, who are of equal relevance, to drive that home	Good leadership
	Learning through "trial and error"
	Autonomy
	Feedback from key stakeholders

Table 2. Example of preliminary coding, Participant 7

These codes and tentative themes were further refined and collated into an initial coding template (see Appendix III). The initial coding template was then applied to 3 other interviews, followed by iterative process of modifying the template to better 'fit' the new data and to ensure that template could adequately capture the richness of the

data set. Figure 1 in the Result section shows the final version of the template used to code the data set.

Although the sample size of this study is not big enough to warrant any claims about prevalence, to further systematize the result of the data analysis, the coding scheme used in this study also recorded the number of participants that deliberated on the themes and their codes. In so doing, readers can get a clearer idea of how each theme was presented in the data set. When describing themes or codes that were deliberated by 11 to 13 participants, the word “nearly all” is used. The term “most” and “majority” are used to indicate that 7 to 10 participants discussed the theme or code. The word “many”, “some” and “several” were used when 4 to 6 participants talked about the said theme or code, and the word “a few” was used to denote codes or themes that were brought up by 1 to 3 participants. However, it is worth noting that in qualitative research, high frequency of occurrence does not necessarily mean the topic is the most interesting or the most significant (Willig, 2008).

Ethical Considerations

Approval from the Norwegian Centre for Research Data (Reference Code: 477334) was obtained prior to commencing participant recruitment and data collection process. Informed consent form (see Appendix II) detailing the research objectives, data collection method, data processing, anonymization and data storage were sent to all participants in the invitation e-mail. It was further explained in the form that accepting or rejecting the invitation to participate in this study would not have any implication on their work or relationship with their employee. All participants have given written consent for the interview session to be recorded and transcribed for the purposes of this research.

Methodology Soundness

This research has sought to fulfill some of the commonly used quality assessment criteria for qualitative research. In particular, the research design has addressed the issue of transparency (whether readers can grasp how the data support the findings and conclusions), reflexivity (awareness of the researcher’s influence on the research) and transferability (whether the findings can be transferred to other community members) (Treharne & Diggs, 2015).

Transparency

The transparency of this research is exhibited through the inclusion of coding examples, initial and final template, as well as citations of participants response where appropriate.

Reflexivity

In place of the notion of ‘objectivity’ used in quantitative research, qualitative researchers are urged to reflect upon and ‘explore the ways in which a researcher’s involvement with a particular study influences, acts upon and informs such research’ (Nightingale & Cromby, 1999, p. 228). I became motivated to study how organizational factors affect successful implementation of chatbots for customer service due to my interests in business digitalization and change management, the desire to understand chatbots from organizational perspective, as well as my prior working experience in customer service. All of this inevitably influences the data collection (i.e. the way interview guide was formulated and the way interviews were conducted), data analysis, interpretation and presentation of research findings.

Transferability

The issue of transferability is addressed through the sampling criteria used in this research, whereby variability in the types of businesses, the participants’ role in the organization and the vendor used may help to increase transferability of the findings despite the relatively small sample size.

Due to practical limitations, triangulation (the use of multiple methods or data sources or investigators to form a comprehensive understanding of a phenomenon and enhance the research credibility) is not used in this research.

IV. RESULTS

Overview

This chapter details the findings of this study structured in accordance to the final template used in the data analysis (Figure 1 on the next page). Template Analysis-

style of thematic analysis (Brooks et al., 2015) was applied to the interview data and five major themes were identified: Background of Implementation, Motivations for Implementation, Criteria for Successful Implementation, Organizational Factors Affecting Implementation and Learning Points.

1. PARTICIPANT'S ROLE AND BACKGROUND OF IMPLEMENTATION

- 1.1 Role in the company and in the project
- 1.2 Implementation process
- 1.3 Chatbot as customer service tool
- 1.4 Chatbot as gatekeeper

2. MOTIVATIONS

- 2.1 Chatbot to address high-volume repetitive questions
- 2.2 Chatbot to improve customer service experience
- 2.3 Chatbot to reduce cost and resource requirements
- 2.4 Chatbot to drive digitalization and value-added customer service

3. SUCCESS CRITERIA

- 3.1 Reduction in customer service queue and increase in service capacity
- 3.2 Successful issue resolution
- 3.3 Customer feedback and third party review

4. ORGANIZATIONAL FACTORS

4.1 *Work and team organization*

- 4.1.1 The way works are organized during different phases
- 4.1.2 Clarity of roles, plans and established routines

4.2 *Change management*

- 4.2.1 Resistance management through employee engagement and sense of ownership
- 4.2.2 Leader's roles
 - 4.2.2.1 Granting team autonomy
 - 4.2.2.2 Attitude towards technological innovation
- 4.2.3 Organizational dimensions
 - 4.2.3.1 Lengthy decision making process and complex organization structure
 - 4.2.3.2 Regulatory and security concerns
 - 4.2.3.3 Information to and from stakeholders

4.3 *Competency and competency acquisition mechanisms*

- 4.3.1 Importance of customer service experience, product and organization knowledge, analytical and writing skills
- 4.3.2 Primary learning mechanism: learning by doing, workshops organized by vendors
- 4.3.3 Secondary learning mechanism: experience sharing within and across teams, cross-company experience sharing sessions

4.4 *Organizational resources*

- 4.4.1 Human resources
- 4.4.2 Technology resources
 - 4.4.2.1 Technology readiness
 - 4.4.2.2 Platform and its vendor partially dictate the requirement for in-house technical resources

4.5 *Performance measures*

- 4.5.1 Qualitative and quantitative measures
- 4.5.2 Challenges with existing performance measures and implications on subsequent improvement works

5. LEARNING POINTS

- 5.1. The importance of technology understanding
- 5.2 Continuous need for customer service personnel
- 5.3 Different approaches to chatbot implementation
 - 5.3.1 Meticulous planning vs. "trial and error" method
 - 5.3.2 One vs. multiple chatbots

Figure 1: Final Template

I will begin by providing a background overview of the participating organizations chatbot implementations. Following this, I will present the key findings – the four overarching themes (Themes 2 - 5 in Figure 1) in details. As with other qualitative

research, where the distinction between ‘Results’ and ‘Discussion’ is often blurred (Anderson, 2010), some elements of discussion are incorporated in the presentation of the study results.

Theme 1: Participant’s Role and Background of Implementation

All participants had practical experience with chatbot implementation, with the length of involvement in chatbot implementation ranging from 1 month to 2.5 years at the time of data collection. Prior to full-scale chatbot implementation, most of the participating organizations had carried out some forms of pilot study. Such pilot studies could include user testing and usability studies involving both external and internal users. Some organizations had carried out extensive and lengthy pilot study, while others had spent less time and resources on this.

All participating organizations used chatbot platforms provided by external vendors. Several of the participants indicated that they had carefully reviewed various local and international vendors during the purchasing stage. Four organizations were using the same vendor – Vendor A, while the other two organizations had selected two other vendors, Vendor B and Vendor C.

The organizations differed slightly in the way they had implemented the chatbot. In three of the organizations, the chatbot was implemented as a gatekeeper, which means that the chatbot was the first point of contact for customers making requests through the chat channel, and only if the chatbot failed to provide a satisfactory solution, the customer would be directed to a human operator. Other participating organizations continued to provide their customers the option to bypass the chatbot and immediately chat with a human operator during operating hours if the customers preferred it.

Next, with the above-described background of implementation in mind, we will go deeper into what motivates organizations to deploy chatbot for customer service.

Theme 2: Motivations for Implementation

Four motivations for implementation of a chatbot for customer service were identified. Firstly, some of the participants noted that their organizations regarded the chatbot *as a potential solution to solve high volume and repetitive questions.*

Secondly, the chatbot's ability to provide instant answer around the clock was also reported as a potential contributor to *improvement in customer service experience*. A few participants also mentioned the need to *reduce cost and resource requirements* as a motivator for the use of customer service chatbot. Lastly, almost all participants reported on a sense of need in the organization to *digitalize their businesses and to add value to the existing customer service* in light of the changing market place and increased competition. These four motivations are detailed below.

Chatbot to address high-volume repetitive questions

This motivation was reported by organizations that experienced high volume in customer queries and high frequency of simple questions or requests, such as "I would like to change my delivery address". In addition, the participants also noted that their organizations often experienced peak periods that recur either routinely or intermittently, making it difficult to plan the workforce required to handle such spikes in customer traffic, as one participant explained to us

"We have many peaks (throughout the year) where we cannot simply start hiring more customer service personnel who will not have anything to do during the rest of the period. Therefore, we see the huge potential of chatbot in answering the simpler inquiries". (Participant 5)

Furthermore, the participants also regarded chatbot as a valuable tool to handle contingency situation, such as service disruption due to technical failure or major disaster event that can cause sudden spikes in customer traffic or prevent customers from getting direct assistance from customer service personnel.

Chatbot to improve customer service experience

Long waiting time in getting any assistance may affect the satisfaction-loyalty relationship in services (Bielen & Demoulin, 2007). Hence, it is not surprising that nearly all participants indicated that they expected the use of customer service chatbot to gradually improve customer service experience through: 1) the ability to answer customer queries instantly at anytime, 2) increased information consistency, 3) reduction of human errors, and 4) the ability to prevent breach of customer privacy that may happen in manual service encounters. In addition, several participants

reported that some individuals occasionally ‘abuse’ the customer service chat system for purposes other than product/service-related inquiries, for example to vent or complain about their daily life. Hence, chatbot can be a valuable tool to minimize the use of resources on such irrelevant inquiries, as described by one of the participants.

“Manning a chat system is a very repetitive task. Many make contact with us, but not all contacts are worth spending time on, and there are also many things that ought to be filtered out, those we call “noise” or unnecessary contacts, for example, those who simply use the chat as a type of entertainment”. (Participant 9)

Ability to ‘filter’ out this type of conversations can potentially improve the response time and quality of customer service as personnel can focus on resolving complex customer inquiries.

Chatbot to reduce cost and resource requirements

By leaving the simpler customer queries to chatbot and channeling customer service resources to attend to more pressing and complicated customer queries, the participants reported on the ambition to achieve reduction of cost and resource requirements. While most participants acknowledged that a chatbot might be resource-intensive during the introductory and implementation phase, they also expected gradual decline in the costs and resource requirements once it entered operational/maintenance phase. Interestingly, only half of the participants brought up cost reduction as a motivation for chatbot implementation. While it may be true that cost reduction is not the main motivator in some organizations, others may choose to leave out cost reduction in the formal communication to their employees as to not create unnecessary sense of uncertainty. As noted by one of the participants:

“Most companies in our sector are focused on costs and bottom line, especially with the interest rate outlook we have now. It is definitely a part of our motivation to get the chatbot up and running, to reduce the costs. But it is not like it will be communicated explicitly. It seems dumb to create hysteria.” (Participant 10)

On the other hand, the need to digitize appears to be a motivation shared by all participants.

Chatbot to drive digitalization and value-added customer service

The desire to digitalize their businesses and to enhance the existing customer service constitutes the main driver behind the implementation of customer service chatbot. Most of the participating organizations were in the midst of digitalizing their businesses, and the chatbot was a part of that digitalization process. Based on participants' accounts, the push for digitalization of customer service may be attributable to the changes in customer demographics and customer behaviors, as well as the maturing of chatbot and AI technology. The shift in customer demographics to younger and more technology savvy customers who prefer speed to personalized services was reported as a factor that makes the automation of customer service through increased use of self-service and chatbots a natural progression. In line with that, the participants from organizations with relatively higher proportion of mature customers reported on a slower pace to service automation. One participant noted that their organization had intentionally kept the option to contact customer service personnel directly easily available right from the beginning due to the age profile of their customer base. The participant further explained that the organization did not see further automation of their customer service as a feasible option before they could observe noticeable decrease in the average age of their customers.

“It’s just we have too few young customers. There are relatively many young people who use our chat, but in totality, only few young customers utilize our paid services. Therefore, we are still focusing a lot on the ease of coming into contact with our customer service operator. We will continue to make human customer service easily available through other channels too, at least in the transitional phase until we are completely certain that the chatbot is answering correctly, but also perhaps until the average age of our customer base becomes more even.” (Participant 11)

The six organizations that participated in this study had different progress in their implementation of the chatbot, some were still working on increasing the accuracy of the answers provided by their chatbot, while others had moved towards transforming their chatbots into virtual agents that can perform certain functions beyond simple questions and answers (Q&A), for instance, ability to terminate products and services, update delivery schedule or other forms post-sales supports. Regardless of how these organizations fares in their chatbot implementation at the moment, most of the

participants expected their chatbots to add value to the existing customer service, included but not limited to higher efficiency among customer service personnel, better control over the issues customers are struggling with, and development of new customer service capabilities to better match changing customer behaviors.

The use of chatbot in customer service capacity only has gained momentum in the recent years. A few of the participants told us the technology was simply not mature enough, thus companies were reluctant to use it despite its many potentials. Some participants also shared that skepticism and resistance were often fueled by the lack of understanding of chatbot technology, as well as concerns over issues like damage to brand reputation and widespread job loss. More findings on the approach used by organizations to tackle these concerns will be presented in later section.

I will now look into the criteria that have been used by organizations to evaluate whether the implementation of a chatbot for customer service has been successful.

Theme 3: Criteria for Successful Implementation

How and when do we know if any new initiative has been implemented successfully? Ideally, a project is considered successful if it accomplishes what it sets out to achieve in the first place. However, rapid changes in the market condition, consumer behaviors and technology development require more fluid project management and evaluation metrics. It is not within the scope of this study to discuss in full depth the intricacies of project management, however, it is imperative to know how organizations define “successful implementation” as the context to understanding organizational factors that affect successful implementation of chatbot.

Three common criteria for defining successful implementation of chatbot emerge from analysis of the interview data. Nearly all participants stated *successful issue resolution* as the main criterion they use in their evaluation. The majority of participants also indicated that they were using *reduction in customer service traffic and expansion in service capacity* as an important deliverable. Additionally, some organizations relied on *customer feedback and review by third party* to get more in-depth information about their customer experience in relation to the chatbot, potential area of improvements, and how they fare in comparison with their competitors.

Successful Issue Resolution

This criterion defines successfulness of implementation based on the extent to which chatbot is able to solve customer queries or requests, either by providing the correct answer, directing customers through website link/ the right contact details, or enabling direct execution of certain actions through the chat platform itself (e.g. credit card cancellation). In contrary, if the chatbot generates more problems than it resolves satisfactorily, then the implementation may not have achieved its intended purposes. For example, if the chatbot is prone to give erroneous suggestions due to erroneous data or has a malfunctioning API (API or Application Programming Interface is a software intermediary that allows interaction between multiple software applications) connected to it that it ends up creating more troubles to the customers than it manages to solve, or if the training sets are inadequate such that the chatbot often fails to understand the customers correctly.

Reduction in customer service traffic and expansion in service capacity

Successfulness of the implementation may also be gauged by whether the length of queue in manual services (usually manual chat is a more compatible benchmark than telephone) is reduced, the response time is shortened, and whether the customer service team is now able to handle more customers. Whilst it was a common practice among all participating organizations to measure customer service traffic in various channels and the fluctuation in their service capacity, some participants suggested that there remained many uncertainties as to how successful implementation should be defined based on such measurements. For instance, some participants said there was a lack of clarity on how much reduction in response time could be considered as an acceptable outcome or whether the decline in customer traffic in one channel could be attributable to the use of the chatbot. Issues related to the various aspects of performance measurements will be discussed in more detail in later section.

Customer feedback and review by third party

Positive reviews given by customers (either through built-in feedback system in the chatbot or more elaborate customer satisfaction survey), as well as third party reviewers (e.g. commentaries by technology or financial magazines) were also seen as indicative of successful implementation.

“We have also been tested by [...] and other similar web-based user tests, where our chatbot was nominated as “the best in test” by users. In that regard, one may say we have succeeded in the implementation although we are still in the early stage of chatbot development”. (Participant 1)

A few participants also mentioned that they had regularly evaluated their chatbot against those of their competitors.

It is worth noting that all participating organizations indicated that they had used multiple criteria (combination of two of the three criteria or all three) to define “successful implementation of chatbot”. These criteria to some extent also overlap with each other, for instance, positive customer feedback is often dependent on whether the chatbot is able to solve customer queries in a satisfactory manner. Some participants offered more tangible definition of “successful implementation of chatbot”, for instance, that the chatbot is considered successful when it achieves 70% customer satisfaction rating. Other participants reported greater fluidity in the organization’s definition of successful chatbot implementation.

Despite the variation in how organizations define successful implementation of chatbot, all participants acknowledge that certain organizational factors must be in place in order to ensure successful implementation of chatbot and post-implementation performance. The following section details the findings on these organizational factors identified through Template Analysis.

Theme 4: Organizational Factors in the Implementation of Chatbot

As note in Introduction, implementation of new technology may be affected by various organizational factors. This study finds five organizational factors that may influence the outcomes of chatbot implementation. First, all participants reported that *work and team organization* could affect the progress of chatbot implementation. Second, most participants noted that the importance *change management* to effectively manage the desirable and less desirable changes attributable to the implementation of chatbot.

Third, as nearly all participant conceded that the quality of chatbot was very much dependent on the quality of its content, having the right *competencies and competency*

acquisition mechanism within the chatbot team is perceived as a critical factor in ensuring successful implementation of chatbot. Fourth, majority of the participants regarded *organizational resources* as an indispensable part of the implementation process, in particular system infrastructure and human resources. Furthermore, since all participating organizations had acquired their chatbot through third party vendors, participants also considered the chatbot platform and its provider as valuable resources in the implementation of chatbot.

Lastly, many participants also suggested that the availability of good *performance measures* might improve the appeal of the business case for chatbot implementation, which in turn could help to secure the resources required for subsequent improvement works. I will now elaborate the detail findings for these organizational factors in the following subsections.

Work and Team Organization

As the contents are seen as the major building blocks in chatbots, nearly all participants have emphasized the importance of competent AI trainers in the implementation of chatbot. Instead of hiring new personnel, every participating organization of this study had recruited AI trainers internally from their existing customer service personnel pool. As a result, while not all participants perceived substantial changes to their existing workflow, most participants reported the need for better work organization during different phases of chatbot implementation.

At the time of data collection, chatbot was still managed as a project in nearly all of the participating organizations. In these organizations, most of the project teams in charge of chatbot implementation were relatively loosely defined and mostly consisted of a project leader/ product owner and multiple AI trainers. Only a few of the organizations had included IT personnel as permanent team member since most participants anticipated gradual decline in the requirement for regular technical supports once they moved past the system integration phase.

Only one of the participating organizations had AI trainers who worked 100% on chatbot, while AI trainers in other participating organizations continued with regular customer service tasks in addition to the newly assigned AI training tasks. Most

participants argued that such split arrangement allowed AI trainers to better maintain their customer service skills and stayed updated of the latest changes. It was also mentioned that since chatbot removed some customer traffic, the increase in workload was generally less noticeable in organizations with larger customer service department.

“We have a small customer service department, when two of us start to work on AI training, the impact is much larger than say, if you compare it to our parent company that has over 200 people in the customer service department.” (Participant 1)

In contrary to the split arrangement, the participants of the organization that had chosen to have fully dedicated AI trainers maintained that the cost of task switching would outweigh the benefits of role duality.

There were also variations in the way tasks were split. Some organizations reportedly had more established routines, role clarity and fixed task assignment while others allowed greater flexibility and autonomy. For instance, the participants of Organization C indicate that their AI trainers were assigned to work on chatbot-related tasks two full days a week; Organization A, on the other hand, allowed the fluctuation in the customer traffic to determine the amount of time spent on chatbot-related tasks. Several participants argued that too much flexibility might be counterproductive.

“Some flexibility is good, but it is not smart to take resources away from something that requires further improvement to use on customer support, which is a never ending task that has not much room for improvement”. (Participant 10)

Notably, many participants revealed that the lack of clearly defined roles, responsibilities and procedures might have slowed the implementation process, especially in the case of cross-functional team or team with members situated at different geographical locations. Consequently, some organizations were reportedly becoming more focused on refining routines, structured collaboration, role definition and governance. Additional help was also given to reduce the workload of team members who already had a lot on their plates before joining the chatbot team.

“In the beginning, chatbot training was something they did on top of their regular tasks. They were supposed to dedicate 10% of their time to work on chatbot and still expected to carry on fully with their respective job. Then, we found out that chatbot ended up at the bottom of their priority list. So, what we have done now is to break down chatbot-related tasks, so that we know Individual A is responsible for the technical part, Individual B is responsible for development, Individual C, D are responsible for customer intents, and so on so forth. Recently, we have also started to include these tasks in the formal job scope. So, I believe that it helps to hold individuals accountable for the assigned tasks, and it makes it easier for them to prioritize and set goals, and for us to measure the performance of these individuals and ensure that they are doing what they are supposed to do.” (Participant 11)

As organizations gradually transition from project to operational phase, transfer of ownership may take place, especially in the organizations that have managed chatbot implementation as a standalone project. Some participants observed that there had been disagreement over who should take over, resource commitment for subsequent improvement works, the next milestone after implementation and changes to work procedures. Besides the need for well-defined transition plan, a few of the participants also commented that the lack of succession plan and clear documentation of work processes could interrupt the progress when key personnel resigned from the organization.

In addition to changes in the way work and teams are organized, the participants also observed some organizational changes upon the implementation of customer service chatbot. The next section will detail how participants perceived these changes and the way their organization had managed these changes so far.

Change Management

The most commonly reported changes among the participants are the changes in the nature of customer service and the role of customer service personnel after the deployment of chatbot. Most participants viewed the way these changes were managed as an important factor leading to successful implementation of chatbot. Four elements have been identified as the keys to successful change management in the case of chatbot implementation, namely *leadership, resistance management, decision-making process and information management*.

Leadership

Nearly all participants perceived leaders who are supportive and exhibit positive attitude towards technology and innovation as the pillar of successful implementation. Participants reported that leaders with positive attitude towards digitalization tend to prioritize chatbot implementation, actively strive to secure resources required for the project, and take necessary actions to reduce uncertainties throughout the process. Leaders were also seen as an important source of information pertaining to the organizational impacts of chatbot implementation. Furthermore, participants also perceive greater sense of ownership and better learning experience when they are allowed to work autonomously and make mistakes without grave consequences.

Resistance Management

Some participants reported that there was a certain degree of resistance within the organization in relation to the use of chatbot for customer service, which mainly stemmed from the lack of understanding of the technology. Higher management and customer service personnel were named as the two primary sources of resistance. According to participants, the management was generally excited over the opportunities presented by the chatbot technology. However, they also feared that ‘incompetent’ chatbot might tarnish their brand reputation. In addition, several participants working in larger organization with adequate in-house resources also witnessed buy vs. build disagreement between those who advocated outsourcing the chatbot platform from a vendor and those who preferred to build it from scratch.

Resistance among customer service personnel appears to be primarily linked to concern over job security.

“Few times when we were discussing about backend integration of our virtual agent, they said “Oh well, it’s going to take our job”. It was kind of a joke, but still, people get that this is a part of development and it will reduce the need for customer service workers”. (Participant 10)

Most of the participants perceived increase in employee engagement as an effective way to reduce resistance among employees, in particular, employees who were not part of the project and might perceive chatbot as a threat to their job. For instance,

some AI trainers said that they would consult other customer service personnel who were not in the chatbot project on matters such as semantic choice or the appropriate answers for questions that were not within their area of expertise.

Whether it is resistance from the management, customer service personnel or other stakeholders, many participants had viewed in-person demonstration, presentation and e-newsletters as a good way to alleviate doubts by ensuring that the key stakeholders stayed informed throughout the implementation process. Nearly all participants said that their organization had disseminated information on chatbot to their employees through multiple channels. However, some participants felt that the information published through these formal channels was often ‘glorified story’ that understated the potential challenges that come with chatbot implementation. A few of the participants suggested that the organization should also inform the employees about their plan to reskill the employees (if such plan existed at all) whose job might eventually vanish as the degree of customer service automation increased.

Decision-making process

Nearly all participants reported that the lengthy and complex decision-making process in their organizations had somewhat hampered the progress in chatbot implementation. The approval process for making changes was said to be overly complicated in some cases where regulatory restrictions and security concerns were involved. Consequently, some participants felt that they had to spend considerable efforts and resources in fulfilling the ‘formality’. In addition, for chatbot teams without cross-functional team members, the participants also indicated that the dependency on other departments such as IT or compliance could slow the implementation progress.

“There is a big hierarchy here, it is after all an organization with various stakeholders and decision-makers in different countries. Chatbot is not the only thing under scrutiny here, it also concerns our internal IT developers, as well as external vendors that our company and subsidiaries use. So things move slower, in relation to approval and such, because we simply have to assess all the alternatives and consequences.” (Participant 10)

While most participants acknowledged that any effort from their end to streamline decision-making process in large organizations might be futile, some participants suggested that organizations should at least make available some form of decision-making flow chart containing information about the ‘who’ and ‘how’ for various types of decisions to improve the clarity and transparency in decision-making.

Information management

Many participants acknowledged that there was still a lack of structured flow of information to and from various stakeholders beyond the general information about chatbot disseminated through company intranet. The ability of AI trainers to make timely updates in the chatbot may partly determine the ability of the chatbot to provide correct answers. At the same time, several participants reported that the latest changes to the products and services were not always updated in time on the company intranet or newsletter. Some participants recognized that there was lack of awareness about chatbot in other departments, and it might have contributed to poor information flow. Therefore, to keep the chatbot updated of the latest changes in products/services, some chatbot teams had reportedly adopted proactive stance by assigning specific team member(s) to such information acquisition function or by actively reminding other relevant departments to keep the chatbot team in loop for any products/ services updates. On the other hand, some participants said their chatbot team had remained reactive to new information in the mean time due to resource constraint.

A few of the participants also emphasized that it could reflect poorly on the chatbot and negatively affect customer experience if new contents were only added after AI trainers had been ‘informed’ by their customers of the latest changes. To avoid lagging behind in content update, some participants would like to see more coordinated information flow between various internal counterparts in the organization.

Competencies and Competency Acquisition

As the gap between functionalities of chatbot platforms offered by different vendors has narrowed down over the years, it has been repeatedly underscored by nearly all participants that the chatbot’s ultimate capability to serve as a good customer service

tool is largely determined by the inputs of the chatbot team, in particular, the inputs of AI trainers. In their search for qualified AI trainers, two core competencies have been identified by all participating organizations as prerequisites to the role: 1) prior experience in customer service; 2) good writing and analytical skills.

Internal recruitment has been the preferred method of all participating organizations. At the heart of this choice was the belief of nearly all product owners or team leaders of the chatbot teams that context-specific customer service skills and familiarity with the products/services offered by the organization, as well as general knowledge of how things work in the organization are the key determinants in the AI trainers' ability to help chatbot realize its full potentials. On the contrary, most participants placed little or no emphasis on technical competency, as many chatbot platforms have become highly user-friendly akin to social media chat platforms. Furthermore, majority of the participants also said they could easily count on their platform vendors to resolve most of the technical issues, as many esteemed vendors boasted superior post-sales supports as a key selling point.

Nevertheless, some participants stressed the importance of having cross-functional team with diverse area of expertise, as technical and analytical skill would be required in tasks like troubleshooting, dialog analysis and customer intent prediction. Diversity in product knowledge was also deemed extremely important for organizations that offered wide array of products/services. At the same time, several participants also pointed out that cross-functional collaboration might present its own challenges as each department usually had their own agenda, internal 'language' and 'culture'.

Most organizations did not offer structured/formal training for their chatbot team. Instead, employees were usually expected to attend workshops/certification courses run by the platform vendor. Such workshops or certification trainings predominantly focus on the technical aspect of chatbot implementation. Participants generally acknowledged that these workshops were useful in increasing their efficacy in using the training tools on the platform, but only a few of the participants perceived that they had received adequate training to fully understand how chatbot works.

“Training should include information on everything, the technical aspects, what happens from the moment customer send us an inquiry and it goes through APIs, which then activate the classification algorithm that places the customer inquiry at the right intent, and subsequently provide chatbot with the answer to the inquiry.” (Participant 12)

Some participants said they had also attempted to increase their knowledge of chatbot technology through non-mandatory online courses or other self-learning methods. Above all, nearly all participants endorsed the “learning by doing” method as the only way to truly grasp the essence of chatbot training,

Experience-sharing between team members or even across subsidiaries were also seen by many participants as a valuable learning channel. However, most participants acknowledged that their organizations had yet to prioritize the establishment of routine/proper procedure for this type of learning, and most exchanges occurred impromptu. Many participants also found cross-company experience-sharing session arranged by certain platform vendors useful in keeping themselves updated of the latest industry practice.

Besides competent support personnel, the existence or absence of other organizational resources may also affect the implementation of chatbot.

Organizational Resources

Based on participants’ accounts, two organizational resources have been identified as the critical resources affecting the successfulness of chatbot for customer service: human resources and technology resources.

Human Resources

As described in the previous section, the availability of competent AI trainers is imperative to chatbot implementation, and due to high reliance on internal recruitment, most participants reported resource constraint of varying degree. Besides AI trainers, in-house IT developers were also seen as indispensable resources, especially for organizations that were still in the midst of migrating or integrating the chatbot solution. Resource constraint was most felt by the participants working in organizations that had smaller customer service department and IT division,

organizations that were experiencing high customer service traffic, as well as among participants whose organizations were juggling with multiple concurrent technology innovation projects.

“There is continuous need for the customer service personnel. We are being pressured to use the least resources possible, because they need them to answer the phone calls. The management wish to train the chatbot but at the same time, they will only commit minimal resources on it, because these personnel are needed to cope with the phone traffic.” (Participant 5)

Most participants indicated that they had not planned to source externally for AI trainers in the near future, as they foresaw stable or downward trend in the resource requirement for subsequent improvement works once the chatbot becomes fully operational. In one organization, the participants revealed that their organization was hiring additional personnel for AI training. The new recruits were expected to have adequate customer service experience and possess excellent analytical and writing skills. The participants of the said organization also expressed that the shift in customer service role to encompass AI-trainer functions might require businesses to change the hiring process and redefine the competency requirement of customer service personnel to ensure that new hires are well equipped to take on the role as both AI trainer and traditional customer service personnel.

Technology Resources

The availability and readiness of technology infrastructure that enables fast integration between various systems have been regarded as an important prerequisite for successful chatbot implementation. Specifically, most participants referred to the technology resources required to enable seamless transference to manual chat and the integration of various APIs. According to participants’ accounts, the lack of seamless transference was frequently associated with more negative customer experience, while poor integration with APIs prevents the transformation of chatbot into a virtual agent with capability extending beyond simple Q&A. Unfortunately, for chatbot teams with less technical competency within the team, integration of APIs and troubleshooting technical errors could prove challenging, as some participants reported the lack of progress when they had to wait for assistance from other department.

Another integral part of technology resources mentioned was the availability of an intuitive chatbot platform and supportive platform vendor. Summing up the narratives of all participants on chatbot platform, the ideal platform should have user-friendly interface with minimal to no coding required, allow easy data analysis, addition or rectification of training data, enable correct handover (e.g. query is directed to specific customer service advisors specializing in the said product/service), provide clear overview of previous dialogues to enable quick handover, and is equipped with embedded measurement tools (e.g. traffic measurement, rating tool, tracking tool to track how customer navigates their website, etc.). Most participants indicated that they regarded their platform provider as a collaborative partner who provided not only the platform and its relevant training, but also continuous supports and mutual learning opportunities that enabled continuous improvement and growth on both sides.

“We have worked together very closely all the way and it has gone both ways. We have come with feedback and suggestions, and have been provided with upgrades and functionalities that are customized to our needs and our system.” (Participant 9)

Accordingly, few participants who experienced less supports from their platform vendor and perceived their platform as less intuitive also reported higher dependency on in-house technical resources.

“The most challenging part is to ensure that we have trained the chatbot adequately, and that administrative panel, or that place where we actually train the robot, it’s not really accessible. We need to engage our system developers to make any updates or changes.” (Participant 11)

Nearly all participants conceded that they had underestimated the resource requirement for chatbot implementation. Many participants acknowledged that they had anticipated minimum resource requirement partly due to their misconception of the AI technology, whereby the notion of ‘intelligent’ robot has led many to believe that chatbot could minimize the need for manual customer services almost instantly.

“The hype around the chatbot or virtual agent is a problem because its inhibiting, it makes people underestimate the seriousness and the investment needed to make it fly,

both in terms of the people who have to create the conversations, ensure that the understandings and stuffs are adequate behind and of quality.” (Participant 7)

Resource requirement is said to fluctuate during different phases as chatbot implementation progresses from introductory to operational phase, making accurate projection of resource requirement a challenging task. Hence, many participants said they expected to see more flexibility in resource allocation and continuous resource requirement for subsequent improvement works.

When asked about what they could have done differently, nearly all participants said they would have better resource planning and allocation. Among the participants who said they were open to hiring externally, one participant suggested that perhaps it would have been more effective if the organization had hired additional AI trainers from the beginning and got the chatbot ready as soon as possible, then dealt with the redundancy issue later on, as the said participant also argued that skills gathered through AI training could be transferrable to other fields in the future. Similarly, those who perceived internal recruitment as the only viable option also suggested that it could be beneficial to identify competent AI trainers among existing personnel prior to commencing the implementation process.

Performance Measures

Performance measurement appeared to be less straightforward in the case of chatbot implementation. All participants indicated that the organization had used multiple forms of performance measures. As mentioned earlier, participants also highlighted the importance of performance measures to support their business case and justify initial and subsequent resource commitment in chatbot implementation. At the same time, disagreements and uncertainties surrounding the issue of performance measures seemed to persist.

“To sign and approve the business case is something difficult, because the KPI in the chatbot space, well, certainly there are certainly some KPIs there, but it’s still sort of immature, and the industry has really struggled to work out a set of KPIs that really articulate the impact in a good way, and all of that makes it difficult to prove the business case, even though it’s definitely there and we can see it.” (Participant 7)

Both quantitative and qualitative measures were used in all participating organizations. Some of the quantitative measures named by participants were: statistics of incoming customer traffic through various service channels (typically telephone, chat, email or physical service counter), customer satisfaction rating system at the end of every chat or telephone conversation, and the number of customer inquiries received and completed by each personnel. Qualitative measures used included analysis of chatbot dialog, as well as customer feedback gathered at the end of chat conversation or through more elaborate customer survey.

All participants stated that their organization had used the combination of both types of measures. Most participants used quantitative measures to define the milestones for chatbot implementation, while qualitative measures were seen as complimentary measures to identify problem areas and potential improvements.

“Currently we want to measure Human Takeover Rate and set a target rate for it. We also have the ambition to be able to see how much traffic has been absorbed by the chatbot and see the reduction in other channels too. But as I said earlier, we have two different measurement tools, and each of these tools measure traffic in different ways. So we must get them aligned first.” (Participant 11)

Many participants felt doubtful over the ability of certain quantitative performance measures to accurately capture the effects of chatbot implementation on organizational and employee performance. For instance, while all organizations actively monitor the fluctuation in telephone traffic, several participants indicated that the decline in telephone traffic could not be fully attributed to the ability of chatbot to successfully solve customer queries for several reasons, such as random and seasonal fluctuation in telephone traffic, increase in self-help functions on their websites and the shift in customer preference towards digital means of communication. Similarly, some participants also observed instances where their customers gave low rating or unfavorable feedback not due to chatbot’s inability to solve the inquiries, but because the answer given was unacceptable to the said customer, for example, when the chatbot rejected the customer’s request to lower the interest rate of their loan.

Anonymity had also further complicated the reliability of these performance measures. In addition, the organizations had no means to follow-up dissatisfied customers when the chats were anonymous.

“The difficult part is that our customers are not logged in when they chat with the chatbot. So we have no idea what happens afterwards, if they call us after chatting with the chatbot. If the answer given is not optimal, the chance is that the customer is not satisfied and will call us later, then you have not really reduced manual service requirement, even if the degree of automation on the chatbot is high.” (Participant 3)

There was also a lack of consensus among participants whether chatbot should be measured with the same set of KPIs used to measure the performance of customer service personnel or chatbot should be measured as a piece of technology. Participants who posited that customer service KPIs were equally applicable to the chatbot argued that since it was a customer service chatbot, its performance should be measured with the same way a service personnel performance is measured. On the other hand, some participants questioned the utility of using customer service KPIs to measure chatbot performance.

“We have very good performance indicators for our customer representatives, for example Customer Satisfaction Scores. But we cannot measure chatbot in the same way. It is after all, not a human being. If a chatbot told you “No, I can’t do this”, you will most likely be annoyed and displeased. But a human being could sugarcoat it in a way that will make you accept the answer somehow. Chatbot is just not equally equipped to adapt its communication style, it will only say what it is programmed to say.” (Participant 2)

As of the time of data collection, all participants shared that their organization had not measured the performance of customer service personnel in their capacity as AI trainers. Consequently, there were no direct ties established between AI trainers’ contributions in training the chatbot and the employee reward system.

“My direct supervisor does not really have more expertise or knowledge in Chatbot A nor my tasks. So it is quite difficult for him to measure my effectivity. It is difficult to see the results. You can say that the number of manual services recorded on our secured site has gone down, but whether this decline is due to my efforts or someone else’s, it’s hard

to say. So I would say it is difficult to give feedback and follow up on the performance of AI trainers.” (Participant 10)

Most participants acknowledged that it could be challenging to find the perfect answer to the performance measurement issues, and since many of them were still in the early phase of the implementation of chatbot, more fine-tuning of existing performance measures would be required as it transitions from introductory to operational phase.

Theme 5: Learning Points

As this study also aims to help other organizations to better plan their chatbot implementation by offering insights from those that have begun to use customer service chatbot, this section will summarize the participants key takeaways and recommendations based on their experience in chatbot implementation.

The Importance of Technology Understanding

While most participants perceived that the training provided by their platform vendor adequately covered the fundamental technical aspects of using the platform, some participants acknowledged the lack of understanding of chatbot technology persisted for a while even after they mastered the chatbot training tools. In participants’ view, having sufficient technology understanding implied that they must understand what they wished to accomplish through the use of customer service chatbot, the potentials and limitations of chatbot, how various components of chatbot were connected and how they affected each other, as well as what the chatbot should and should not be able to do, i.e. the scope of the chatbot.

Nearly all participants accentuated the importance of defining the scope of the chatbot as precursor of successful chatbot implementation as it would enable organization to plan, implement, prioritize and evaluate in meaningful way. Furthermore, as previously mentioned, most participants had also attributed poor resource planning and allocation to misconception of the chatbot technology. As such, few participants pointed out the need for more comprehensive information/ training to prospective leaders and members of their chatbot team.

“Something that would have been positive is to have better technological understanding, perhaps some sort of flowchart or diagram to show how things work and what are the important factors in optimizing chatbot performance.” (Participant 11)

At the same time, some participants pointed out that by believing that chatbot is a ‘technology thing’, organizations could end up underestimating the seriousness of the decision to deploy customer service chatbot and the necessity for supportive organizational framework to put different critical elements together.

Continuous Need for Customer Service Personnel

All participants believed that chatbot could not eradicate the need for manual customer services at this juncture. None of the participating organizations reported cutback on the number of customer service personnel at the time of data collection. Nearly all participants said that their organization did not have immediate plan to make any cutback, but also noted that this might change since cost reduction was one of the motivators behind the implementation.

At the same time, most participants acknowledged that chatbot had reshaped the traditional role of customer service. Several positive changes noted by participants are: 1) customer service job has expanded beyond answering Q&A or executing simple tasks, 2) customer service personnel can spend more time on solving complex customer queries or more strategic tasks, 3) more autonomy and flexibility in day-to-day, as well as gradual transition from a routine-based to more agile working style, 3) transformation of a reactive role to one that is more proactive; 4) skills gained through AI training are valuable assets in today’s job market; 5) chatbot enables customers to give instant feedback on personnel’s contribution, making it easier to align personal efforts and job satisfaction.

“It is very exciting, and there are new challenges all the time. The thing that is so interesting with chatbot is that, you can do so many things with it, if you have an idea, it’s most likely doable in 9 out of 10 instances. There are not many limitations in what one can do when it comes to chatbot. If you come up with a new logic that is smart, it is just to test it out. Within relatively short period of time, you’ll see if it works. If it does not work, it’s quite easy to remove the changes made. So it’s very easy to work in agile way with chatbot, and it’s relatively ‘safe environment’ for learning, because if you make

mistake, it's quite easy to spot it, and the consequences on the customers are usually not dire.” (Participant 3)

Different Approaches to Chatbot Implementation

User Testing and Pilot Study

Some participants reported that their organization had undergone extensive and lengthy user testing and pilot study prior to formally launching their chatbot. However, a few of the participants also questioned the tremendous efforts spent by their organization in pilot study, as they maintained that there was little value in spending excessive resources on pilot study and the ‘real’ data would have been more useful in facilitating learning and subsequent improvements.

There is currently no specific formula to determine the optimum level of user testing and pilot study. Instead, based on participants’ experience, this decision is often guided by: costs vs. benefits analysis, perceived impact of chatbot on brand reputation and whether customer service plays a central role in the firm’s competitiveness and reputation, leader’s attitude towards technology implementation, as well as technology maturity and customer readiness during the time of implementation.

One vs. multiple chatbots

All participating organizations have regional or global subsidiaries or affiliate organizations. As a result, these organizations needed to choose whether to use the same chatbot and/or vendor across subsidiaries or affiliates. All organizations with global subsidiaries have reportedly used different chatbots and vendors for their automated chat services. On the other hand, among those that do not have international operations, few organizations have chosen to use the same chatbot, while others preferred to have different chatbots for each subsidiary/affiliate. A few of the participants supported the consolidated approach as they saw better synergy for the organization’s wider digitalization process through the use of same chatbot, while some participants were concerned that such approach might complicate AI training process and adversely affect the ability of the chatbots to provide correct answers due to the vast amount of intertwined data.

Language and culture were also important practical considerations that might inhibit consolidation of chatbots within a multinational organization, as most participants reported that they preferred to work with vendors that had expertise in the local language and cultural context. Besides practical considerations, several participants also mentioned that the politics within the organization might have also affected the choice of whether to consolidate their chatbots.

In the next section, I will sum up the findings of this research and discuss the theoretical and practical implications of this research. I will conclude this paper with author reflexivity, limitations of the research and recommendations on potential future directions for research on chatbot.

V. DISCUSSION

Chatbot is thus far not a plug-n-play solution. Besides the initial investment in purchasing or developing the platform, it often requires continuous resource commitment for subsequent improvement and maintenance. This study has looked into 1) what motivated organizations to deploy a customer service chatbot, 2) how these organizations define a successful chatbot implementation through various evaluation criteria and most importantly, and 3) which organizational factors are critical to the implementation of customer service chatbot.

The findings of this research show that organizations may primarily be motivated by the desire to digitalize their businesses, improve customer service experience and reduce the customer maintenance and acquisition costs. Successful implementation of chatbot is usually defined through criteria such as the rate of successful issue resolution, the reduction in the number of inquiries handled manually, the increase in customer service capacity, as well as the level of customer satisfaction and feedback from third-party reviewers. Five organizational factors have been identified as critical to the implementation of chatbots for customer service: 1) the way work and teams are organized, 2) the way organizational changes are managed, 3) the competencies of the chatbot team and the way these competencies are acquired, 4) organizational resources, in particular, human resources and technical resources, 5) how performance has been measured. Organizations are inclined to underestimate resource requirements

due to the lack of proper understanding of the chatbot technology and the disagreements surrounding the best practice of chatbot implementation continue to persist.

Theoretical Implications

The empirical results of this research suggest that the implementation of chatbots for customer service cannot be studied as a purely technological one-time installation. Klein & Sorra (1996) defines 'implementation' as "the process of gaining targeted organizational members' appropriate and committed use of innovation". The authors further argue that the failure of an innovation to achieve expected gains often reflects *not* the ineffectiveness of the innovation per se, but the ineffectiveness of the implementation process. Yet, current studies on chatbots have primarily focused on the 'technological' elements of chatbot and there has been little mention of how the effectiveness of the implementation process of customer service chatbot can be improved by addressing various organizational factors that affect the implementation service. As such, this research can help fill the void in the existing literatures by identifying which and how organizational factors affect chatbot implementation and its effectiveness / successfulness.

The study of chatbot implementation as an organizational phenomenon also may help to expand our knowledge in the following area.

Chatbot, Mental Workload (MWL) and Performance

Chatbots excel in unloading human service personnel from simple and repetitive inquiries. Yet, it is unclear whether the implementation of chatbot reduces or increases the overall MWL of service personnel. The deployment of chatbot and the prevailing trend to use existing customer service personnel as AI trainers in the effort to prevent loss of skill may imply increase in cognitive load through: 1) the load induced by increase in task complexity, 2) the load induced by secondary tasks (AI training and other chatbot-related tasks, such as cross-team collaboration), 3) the load induced by task switching.

The findings of this research suggest that the existence of established routines in the newly added chatbot-related tasks and the personnel's desire to engage in more

challenging tasks may affect the perceived MWL resulting from increased task complexity and frequent task switching.

Overly high or low MWL may lead to poor performance, while optimal level of MWL has been associated with higher employee's job satisfaction, as well as improved physical and mental health outcomes (Van Acker et al., 2018). This leads to two other impending questions: 1) what is the optimal MWL in this context? 2) how does chatbot affect the performance of service personnel? While MWL has been extensively studied in the context of automation in high-risk works such as piloting a plane or operating a nuclear plant, the implications of the increased use of artificial intelligence like chatbots in the modern workplace on MWL remains an unexplored territory. In addition, despite common consensus that chatbot performance cannot be presumed to be fully indicative of the performance of the related employees, all participants reported that their current performance measures have focused on the performance of the chatbot.

A better understanding of how the deployment of chatbot changes customer service personnel's performance and how these personnel's MWL changes following the implementation of chatbot may help to determine how customer service-related processes can be redesigned to support the collaboration between human and AI.

The Mediating Role of Organizational Resources

The findings of this research show that organizational resources may mediate the outcome of chatbot implementation in two ways: 1) by affecting the progress of chatbot implementation, 2) by facilitating sustainable competitive advantage upon the deployment of chatbot. This study found that most participants perceived resource constraints as a main cause of slow progress in chatbot implementation. By applying a 'phase' approach to chatbot implementation, the narratives of the research participants indicate that resource requirements fluctuates during different phases of chatbot implementation, with the highest resource requirement reported during the 'preparation and training' phase and the 'transition' phase.

Doherty and Terry (2012) argue that sustainable improvements in competitive positioning through technology innovation are derived *not* from the innovation

initiative itself. Instead, sustainable competitive advantage is derived from effective leveraging of organizational resources achieved through sustainable and indirect impacts of the said innovation initiative. The deployment of customer service chatbot has become a relatively “easy to replicate” business strategy for most organizations as the technology matures. As such, the initial competitive advantages derived from chatbot implementation may gradually diminish once chatbots for customer service become a standard practice across businesses. Nevertheless, chatbot may continue to leverage existing organizational resources and through such leveraging, organizations can achieve sustainable competitive advantage.

This study discovers that chatbot can leverage the skills and capabilities of the organization’s human resources. As noted by most participants, the deployment of chatbot has created a good learning opportunity for the organization and the employees. Through chatbot, employees gain more skills and knowledge on Human-Artificial Intelligence (AI) Collaboration, which in turn may better position the organizations for subsequent digitalization of their business processes. There are perhaps many other unexplored ways chatbot can leverage the existing organizational resources, for instance, the data gathered through chatbot may become critical informational resources to gain insights on customer behaviors and help shape future business strategies.

Practical Implications

While it is not the intention of this study to prescribe a road map to chatbot implementation, the findings of this research may serve to guide organizations in addressing the critical questions that can affect the outcome or progression of chatbot implementation. In particular, the presented findings enable addressing of the critical questions in the following areas:

- 1) The scope of the chatbot. This study may inform organizations on defining what the chatbot should be/ should not be able to do, as well as setting clear and achievable milestones.
- 2) Work and team organization. The study provides insights into aspects of job design (e.g. split-time arrangement between AI-training and customer service work) that should be considered for chatbot implementation, as well as team composition and how to facilitate cross-team collaboration.

3) Change management. Several dimensions of change management important for chatbot implementation were identified in this study: leader's attitude towards technology innovation, resistance management, informing and maintaining communication between various stakeholders.

4) Competency. The findings of this study indicate that customer service experience, familiarity with the company's products and services, as well as writing and analytical skills are key competencies in training a chatbot. Organizations may also find insights on how to facilitate formal and informal learning.

5) Organizational resources. Human resources and technological resources have been identified as key organizational resources in the implementation process. The study findings may inform organizations on how resource planning and allocation may affect the progress of the implementation, as well as other issues such as outsourcing.

6) Performance measures. As reported by some participants, there are multiple ways to measure performance. Yet, there is still a lack of consensus on how (and whose) performance should be measured and rewarded. The study findings may help organizations decide on a combination of performance measures suited for their particular needs.

7) User-testing and pilot studies. The findings of this study provide insights into how efforts and resources spent on this may depend on the organizations' perceived values (e.g. will a smarter chatbot increase my customer loyalty substantially?) and risks (e.g. will I get bad publicity if the chatbot gives a wrong answer?). As such, the findings may motivate reflection on these decisions.

In addition, although not discussed extensively in the interviews, some participants also indicated that they would prefer if the organization had a clearer plan to reskill the employees' whose job might be adversely affected by the chatbot. By preemptively addressing these issues, organizations may achieve a more effective implementation of customer service chatbot.

Limitations

The relevance of the evaluation criteria of any qualitative research depends the epistemology stance adopted in the research (Willig 2008, Howitt, 2019). The subtle realist position of this research implies that there is a need to address the issue of

validity, reliability and generalizability. Validity in qualitative research concerns the “appropriateness” of the tools, processes and data, while reliability is inferred through consistency instead of replicability (Leung, 2015). An alternative to generalizability in qualitative research is transferability (Treharne & Riggs, 2015).

In this study, validity is partially established through its choice of data collection method and data analysis method. If more resources were available to the project, the validity of the results might have been further strengthened if participant validations (by getting the participants to verify the interview transcriptions) were included. Furthermore, if time and resources constraints were not present in this project, investigators triangulation could also be used to validate the consistency and validity of the data collected (accuracy of transcriptions), data analysis (coding of the data) and interpretation. The specific profiling criteria used in the purposive sampling, while served the purpose of reflecting mainstream users of customer service chatbots, may limit the transferability of the research findings to cases that strongly diverge from the profiles of the participants and their respective organization, for example, small enterprises based outside of Norway that used a social media-based chatbot.

In addition, although stated explicitly in the invitation e-mail and the informed consent form that data will be anonymized, and that the participation in this study is fully voluntary and that non-participation would not affect lead to negative consequences nor affect the participants’ relationship with their employer, some participants could conceivably be inclined to report on the project and their organization with a positive bias in such research setting.

Future Research

Further research on chatbots for customer service from organizational perspective can be built on the findings of this research and address methodological limitations of this study. For example, this study has not investigated the relative importance of each of the identified organizational factors. Knowing the relative importance of these factors may help organizations in correctly prioritizing the tasks at hand. Furthermore, as the study has included only members of the chatbot team, future research may also look into gathering the insights from other employees who are not actively involved in the implementation process, but are still somewhat affected by the chatbot, such as

customer service personnel who are not part of the chatbot team, marketing executives whose product information is now disseminated through chatbot, etc. Expanding the transferability of this research through the inclusion of a bigger or more diverse sample may also add value to our understanding of the role of organizational factors in chatbot implementation. Future research may also further pursue how the deployment of customer service chatbot affects employee performance and MWL, as well as how organizations can use chatbot to leverage existing organizational resources into a sustainable competitive advantage

VI. CONCLUSION

Despite the many potential benefits of deploying customer service chatbots, some companies still choose to take a “wait and see” approach. In a recent survey, only 9% of companies reported having a clear strategy for leveraging their chatbots (Srinivasan et al., 2018). At the same time, this research found that despite using the same platform vendor, organizations reported different progress and faced different challenge in their implementation process, and there was also variability in the reported outcomes. All this underscores the importance of non-technical aspects of chatbot implementation. This study has explored how organizations define ‘successful implementation of chatbot’ and the organizational factors that affect the implementation of chatbots for customer service. The findings of this research accentuate that a ‘good chatbot’ is not all it takes to ensure a successful chatbot implementation.

APPENDIX I – INTERVIEW GUIDE

I. Om chatboten i virksomheten

1. Kan du for det aller første forklare kort om din rolle i <<bedriftsnavn>>, og din rolle i forhold til utvikling og implementering av chatbot for kundeservice?

Prompt: - når (planleggingsfase, innføringsfase, implementeringsfase, evalueringsfase, osv.) og hvorfor du blir involvert i chatbot-prosjektet?
- oppgaver innen prosjektet

2. Kan du fortelle litt om hvordan dere har tatt i bruk chatboten?

Prompt: bakgrunn, motivasjon, innføringsprosess, implementeringsprosess, nåværende status/fase

3. Fortell litt om erfaringene dere har hatt så langt med chatbot for kundeservice.

Prompt: - erfaringer med plattformen (brukervennlighet, overgang fra chatbot til kundeserviceansvarlig, koordinering mellom ulike kommunikasjonskanaler)
- feedback fra kunder
- effektivitet
- utfordringer
- motstand

II. Målsetting for Chatbot

4. Hvordan vil du karakterisere vellykket implementering av en chatbot for kundeservice? (generelt, overordnet → konkrete kriterier)

Prompt: kortsiktig, langsiktig
Mulige temaer: bruk, effektivitet, kostnadsreduksjon, kundeopplevelse, medarbeidertilfredshet

III. Organisasjonsfaktorer som påvirker implementering av Chatbot

5. Hvilke organisasjonsmessige faktorer vurderer du som viktige for en vellykket implementering av chatbot for kundeservice hos dere?

Mulige temaer: kultur, ledelse, teamwork, rolleklarhet, informasjon, kompetanse og opplæring, medvirkning i prosjektet, struktur og prosesser, ressurser

6. Hvilke organisasjonsmessige faktorer har du opplevd som utfordrende eller hemmende i arbeidet med å få til en god implementering av chatboten for kundeservice?

Mulige temaer: samme som Spørsmål 5

7. Om du ser tilbake på innføringen av chatboten for kundeservice hos dere, hva kunne vært gjort annerledes eller vært forbedret i denne prosessen?

IV. Påvirkning på arbeidsprosesser

8. Hvordan har innføring og implementering av chatboten for kundeservice påvirket organisasjonen eller arbeidsprosessene hos dere?

Prompt: - endringer i arbeidsprosesser i forhold til ulike faser i implementasjonsprosessen: forberedelse og trening, overgang, ytelse og nytte og vedlikehold
- arbeidsbelastning og rolle
- fordeling av oppgaver, tid og ressurser
- påkrevet kompetanse
- forhold med medarbeidere i teamet og andre avdelinger

9. Fortell om forbedringer i organisasjonen og arbeidsprosesser etter innføringen av chatbot for kundeservice.

10. Kan du fortelle om utfordringer knyttet til organisasjon og arbeidsprosesser som har oppstått ved implementering av chatboten for kundeservice?

11. Hvordan har dere eventuelt arbeidet for å møte utfordringene knyttet til organisasjon og arbeidsprosesser?

V. Påvirkning på kundeservice

12. Hvordan har innføringen av deres chatbot påvirket kundeservice – sett fra kundenes perspektiv og deres perspektiv?

Prompt: - positive påvirkninger & negative påvirkninger

VI. Veien videre

13. For å oppsummere: Basert på deres erfaringer, hvilke råd vil du gi til for bedrifter som planlegger å ta i bruk chatbot for kundeservice?

Prompt: råd knyttet til organisasjonsmessige forhold

AVSLUTNING AV INTERVJUET

APPENDIX II – INFORMED CONSENT FORM

Vil du delta i forskningsprosjektet
**“Organizational Factors that Affect Successful
Implementation of Chatbot”?**

Dette er et spørsmål til deg om å delta i et mastergradsprosjekt hvor formålet er å skaffe ny kunnskap om chatboter i kundeservice. I dette skrivet gir vi deg informasjon om målene for prosjektet og hva deltakelsen innebærer for deg.

Formål

Formålet med prosjektet er å undersøke hvilke organisasjonsmessige forhold i en virksomhet som kan fremme eller hemme vellykket implementering chatboter for kundeservice. Undersøkelsen vil gjennomføres gjennom intervjuer av personer i virksomheter som har tatt i bruk chatboter for kundeservice, eller er i ferd med å ta i bruk slike. Prosjektet vil bidra til ny forståelse av hvordan innføring av en chatbot for kundeservice påvirker or påvirkes av en virksomhets organisasjon og arbeidsprosesser.

Prosjektet er et mastergradsprosjekt ved Psykologisk institutt, Universitetet i Oslo. Prosjektet gjennomføres i samarbeid med SINTEF i tilknytning til innovasjonsprosjektet *Chatbots for Loyalty*. Resultatene fra mastergradsprosjektet kan brukes også i det tilknyttede innovasjonsprosjektet.

Hvem er ansvarlig for forskningsprosjektet?

Universitetet i Oslo er ansvarlig for prosjektet. Prosjektet gjennomføres av Juliana Zhang (Masterstudent, Psykologisk institutt, Universitetet i Oslo). Prosjektansvarlig og hovedveileder er Cato Alexander Bjørkli (Psykologisk institutt, Universitetet i Oslo). Biveleder er Asbjørn Følstad (SINTEF).

Hvorfor får du spørsmål om å delta?

Du får spørsmål om å delta i prosjektet siden du har vært involvert i arbeidet med chatbot for kundeservice i din virksomhet. I alt vil vi invitere deltagere fra 6-10 virksomheter, med utgangspunkt i vår kjennskap til virksomheter som har tatt i bruk, eller er i ferd med å ta i bruk chatboter til kundeservice. Vi vil intervju 2-3 deltagere fra hver virksomhet. Alle deltagere får invitasjonen gjennom direkte kontakt fra masterstudenten eller en av dennes veilere, eller gjennom kontaktperson i virksomheten.

Hva innebærer det for deg å delta?

Hvis du velger å delta i prosjektet, innebærer det at du deltar i et intervju. Intervjuet gjennomføres av masterstudenten. Det vil ta deg 45 – 60 minutter å delta. Intervjuet vil omhandle virksomhetens implementering av chatbot for kundeservice, hvordan organisasjon og arbeidsprosesser påvirkes av denne implementeringen, og organisasjonsmessige faktorer som fremmer eller hemmer vellykket implementering av en chatbot for kundeservice. Lydopptak og notater blir tatt underveis i intervjuet.

Det er frivillig å delta

Det er frivillig å delta i prosjektet. Hvis du velger å delta, kan du når som helst trekke

samtykke tilbake uten å oppgi noen grunn. Alle opplysninger om deg vil da bli anonymisert. Det vil ikke ha noen negative konsekvenser for deg hvis du ikke vil delta eller senere velger å trekke deg. Det å trekke seg vil ikke påvirke ditt forhold til din arbeidsplass og arbeidsgiver.

Ditt personvern – hvordan vi oppbevarer og bruker dine opplysninger

Dine opplysninger vil bare brukes til formålene beskrevet i dette skrevet. Opplysningene vil behandles konfidensielt og i samsvar med personvernregelverket. Etter at intervjuet er gjennomført vil lydfilen blir transkribert. Transkriptet og notatene fra intervjuet blir avidentifisert slik at personopplysninger bare blir tilgjengelige ved bruk av kodingsnøkkel som oppbevares separat. Datamaterialene blir lagret hos UiO på kryptert forskningsserver. Ingen andre enn prosjektansvarlig vil ha tilgang til lydopptak og intervjunotater.

I publikasjoner fra studien vil sitater fra intervjuene kunne brukes, men dette vil bare gjøres på en slik måte at de ikke kan spores tilbake til deg eller din virksomhet.

Hva skjer med opplysningene dine når vi avslutter forskningsprosjektet?

Prosjektet avsluttes etter planen i juni 2020. Alle data blir anonymisert ved prosjektslutt ved at lydfiler og kodingsnøkler slettes.

Dine rettigheter

Så lenge du kan identifiseres i datamaterialet, har du rett til:

- innsyn i hvilke personopplysninger som er registrert om deg,
- å få rettet personopplysninger om deg,
- få slettet personopplysninger om deg,
- få utlevert en kopi av dine personopplysninger (dataportabilitet), og
- å sende klage til personvernombudet eller Datatilsynet om behandlingen av dine personopplysninger.

Hva gir oss rett til å behandle personopplysninger om deg?

Vi behandler opplysninger om deg basert på ditt samtykke.

På oppdrag fra Universitetet i Oslo har NSD – Norsk senter for forskningsdata AS vurdert at behandlingen av personopplysninger i dette prosjektet er i samsvar med personvernregelverket.

Hvor kan jeg finne ut mer?

Hvis du har spørsmål til studien, eller ønsker å benytte deg av dine rettigheter, ta kontakt med:

- Universitetet i Oslo ved prosjektansvarlig og hovedveileder Cato Alexander Bjørkli, på epost (cato.bjorkli@psykologi.uio.no) eller telefon: 22 84 52 27, eller ved masterstudent Juliana Zhang, på epost (jjzhang@student.sv.uio.no) eller telefon: 96 91 12 88.
- Vårt personvernombud: Maren Magnus Voll, på e-post (personvernombud@uio.no)
- NSD – Norsk senter for forskningsdata AS, på e-post (personverntjenester@nsd.no) eller telefon: 55 58 21 17.

Med vennlig hilsen

Cato Alexander Bjørkli
Zhang
(Prosjektansvarlig og hovedveileder)

Juliana
(Mastergradsstudent)

Samtykkeerklæring

Jeg har mottatt og forstått informasjon om prosjektet “Organizational factors that affect successful implementation of Chatbot” og har fått anledning til å stille spørsmål. Jeg samtykker til:

å delta i intervju

Jeg samtykker til at mine opplysninger behandles frem til prosjektet er avsluttet, ca. juni 2020.

(Signert av prosjektdeltaker, dato)

APPENDIX III– INITIAL CODING TEMPLATE

1. Background

- 1.1 Role in the company and in the project
- 1.2 Implementation process
- 1.3 Age of chatbot
- 1.4 Number of chatbot(s) across different subsidiaries
- 1.5 Chatbot as customer service tool
- 1.6 Chatbot as gatekeeper

2. Motivations

- 2.1 Eager to try new technology and be early adopter
- 2.2 Improvement of customer experience
- 2.3 Reduction in cost and resource requirements
- 2.4 Faster response time

3. Criteria of evaluation

- 3.1 Reduction in customer service queue
- 3.2 Expansion of customer service capacity
- 3.3 Value-add to customer service
- 3.4 Positive customer feedback
- 3.5 Successful issue resolution

4. Organizational factors

- 4.1 Works organization
 - 4.1.1 Split between AI training tasks and customer service role
 - 4.1.2 Flexible vs. fixed task assignment
 - 4.1.3 Team in multiple locations
 - 4.1.4 Workload and size of customer service team
 - 4.1.5 Clear plan, work processes, roles and responsibilities
- 4.2 Organizational dimensions
 - 4.2.1 Culture and openness to digitalization
 - 4.2.2 Decision-making process and organizational structure
 - 4.2.3 Sense of ownership and engagement in the project
 - 4.2.4 Integration with existing operating system
 - 4.2.5 Regulatory restrictions and security concerns
- 4.3 Competency

- 4.3.1 Experience in customer service
- 4.3.2 Familiarity with products and broader organizational knowledge
- 4.3.3 Technical competency is less crucial

4.4 Learning

- 4.4.1 Learning by doing
- 4.4.2 Experience sharing

4.5 Information

- 4.5.1 Main source: intranet and newsletter
- 4.5.2 Information to and from stakeholders

4.6 Resistance

- 4.6.1 Multiple chatbots in an organization
- 4.6.2 Worry that chatbot will takeover their job
- 4.6.3 Worry that chatbot will tarnish brand reputation

4.7 Resources

- 4.7.1 Infrastructure readiness
- 4.7.2 Limitation and allocation

5. Transition from project to operational phase

6. Platform provider and their roles

7. Measurements

- 7.1 Qualitative and quantitative measurements
- 7.2. Challenges with anonymous chat and current measurement methods

8. Learning points

- 8.1 Technology understanding is necessary
- 8.2 Setting clear scope for chatbot
- 8.3 Lack of clear KPIs
- 8.4 Continuous need for customer service personnel
- 8.5 The need for good business case to justify resource commitment
- 8.6 Should organization plan and test meticulously or go 'live' ASAP
- 8.7 From chatbot to 'virtual agent'

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