Chatbot - Magic in a box?
- A study of a chatbot in a Swedish bank

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Abstract

Artificial Intelligence (AI) is a topic, which is widely discussed around the globe. One branch of AI is Chatbot (CB) technology that uses Natural Language Processing to understand, reply and communicate with humans. Increasingly, CB has gained more popularity in many companies because of its contribution to productivity and efficiency. However, less is said about organizations expectations, use, and challenges of the CB. This exploratory research tries to get a more organizational perspective of this new phenomenon. To do so, we conducted interviews with project members in a large banking organization that utilizes CB. This study contributed three major conclusions: first, the importance of making sure employees understands the importance and scale of training in regard to the use of a chatbot. Second, the results also suggest that the CB performs simple tasks but still has the ability to save time for employees who use it. Third, this study acknowledged the potential in CB and the importance of proactively embracing it today to not fall behind the curve. The result contributes to the research area of CB with insights from an organizational perspective.

Keywords: Chatbot, Artificial Intelligence, Organization, Adoption, Implementation, Challenges.
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1. INTRODUCTION

This chapter begins with a background, problem statement followed with the purpose and research questions for this thesis. The chapter ends with research delimitations and the chosen disputation.

1.1. Background
In 2018, Artificial Intelligence (AI) technology is a mega-trend, and it is expected to be an essential part of every large company in the future (Wilson, Daugherty & Bianzino, 2017). AI is a technology that can perform tasks that normally require human intelligence (Nilsson, 2014). Today, more than over one thousand large companies in the world use AI, in various sectors and with different features (Wilson et al., 2017). Some experts have speculated in how AI might be able to take over millions of jobs, (Loebbecke & Picot, 2015; Stiftelsen för strategisk forskning, 2014; Pannu, 2016). According to a report from the Foundation for Strategic Research (2014), over half of today's employees in Sweden are expected to be replaced by digital technology over the next 20 years. Another researcher foresees that the future holds a symbiosis between humans and technology as more devices become interconnected. Therefore, this enables AI to finally serve in its full potential (Grudin, 2017).

A sub-category of AI is Chatbot (CB), a technology, which can have intelligent conversations with the user (Shah, Shetty, Shah & Pamnani, 2017). The application can communicate with humans in their natural language and answer questions, perform required tasks or provide information (Luger & Sellen, 2016). It is not a new phenomenon, rather something that has existed in many different domains for years (Cameron, Cameron, Megaw, Bond, Mulvenna, O’Neil & McTear, 2017). Implementations of CB have been in contexts like education (Bii, 2013; Dahiya, 2017), marketing (Dole, Sansare, Harekar & Athalye, 2015; Shah et al., 2017), and customer service (Chakrabarti & Luger, 2015). As mentioned above, CB is not a new technology; in the early 60's one of the first CB ELIZA was developed (Weizenbaum, 1966). ELIZA used pattern matching and a template-based answer mechanism when trying to mimic a psychotherapist (Dale, 2016). However, the rise of CB has gained momentum in recent years, and famous CBs are Apple's Siri and Amazon’s Alexa (Strong, 2016).

The banking industry is under a lot of pressure from different directions such as regulations and legislation, new technology, and competition from start-ups. Bank organizations have also utilized digitization by moving their business from physical banking offices to the Internet and mobile devices; employees have switch tasks or are redundant. (Tinnilä, 2012) Furthermore, by years of implementing technology, traditional banks are burdened, and their technological infrastructure is like a museum (Aral & Weill, 2007; Umble, Haft & Umble, 2003; Lucas & Goh, 2009). Start-ups have the advantage of starting from scratch when adopting new technology, which challenges traditional organizations with their giant technological structure (Lucas & Goh, 2009). For conventional companies that must cope
with competitors, for example, “start-ups,” to start their journey with AI must need to invest in the technology (Accenture, 2017).

### 1.2. Problem statement

The world in which companies operate is in persistent change due to increased globalization and digitization. Companies need to manage the increasingly harder competition, and they should invest in new processes, technologies, or innovations to reduce costs or/and increase value (Loebbecke & Picot, 2015; Oana, Cosmin, & Valentin, 2017). While technical innovations flourish, some companies take advantage of opportunities, and others are left behind (Tushman & O’Reilly, 2002). An illustration of this is in the story of Kodak, who faced their competitors embracing a new technology and lost ground. Banks are now facing a Kodak moment (Lucas & Goh, 2009). Banks’ traditional business forms will be different in the future due to new technology and new competitors entering the market. As in the case of Kodak, traditional banks will have to cope with changes in their environment to survive (Tinnilä, 2012). With new competitors in the form of start-ups embarking into the banking industry with the ability to adopt new technology and business forms, the traditional banks have to embrace the challenges (Lucas & Goh, 2009).

The AI technology has the potential of reducing costs, make processes more efficient and increase value to organizations and their customers (Pannu, 2016). This technology has characteristic features that traditional IT systems lack (Tirgul & Naik, 2016). In the AI field, a branch is a CB that can communicate with humans in different forms like text or voice (Dole et al., 2015). AI-driven CBs are evolving through existing data and user’s input which means that the more the CB is used, even more developed it gets (Rahman, Al Mamun & Islam, 2017). Swedish companies are encouraged to invest in the field; otherwise, they will get behind their competitors (Accenture, 2017; Malmqvist, 2018). Compared to other IT systems, it can be crucial to be first in implementing an AI because of its continually evolving nature (Accenture, 2017). Earlier, companies could wait and see if it was worth investing in new technology and, in some cases, it was advantageous not to be first with new technology. However, with AI and CB technology, the companies that first implement it will always be one step ahead of the competitors because the CB has learned from the input ever since the implementation (Malmqvist, 2018).

Some researchers claim that up to 70% of all IT implementations fail (Balogun & Hope Hailey, 2004). Challenges can be found in different areas such as business model, management support, employment commitment or technical aspects. The CB technology has been implemented in different contexts, e.g., Microsoft's Cortana who is a CB used in the interface of Xbox One (Dale, 2016), Facebook’s messenger, Google Now, and Amazon’s Alexia (Luger & Sellen, 2016). One example of failed AI project was Microsoft CB, Tay, which was trained with input from Twitter users; however, it shut down when it started to produce inappropriate tweets (Neff & Nagy, 2016). In the example above, AI-driven CBs are aimed and used by customers. Researchers have mainly focused on the customer perspective (Ray et al., 2005; Chakrabarti & Luger, 2015; Dole et al., 2015; Shah et al., 2017) or technical
aspects of CB (Kerly et al., 2007; Hill, Ford & Farreras, 2015; Dahiya, 2017). However, in the light of the increasing introduction of CB in companies (Accenture, 2016) less research attention has been given to the organizational perspective.

In several decades, AI and robotics have been working in industries like car manufacturing and steel plants, resulting in the reduced human workforce and making people unemployed (Peirson-Smith, 2017). Tasks, AI-driven CBs are executing today, are for instance: problem solving in health care (Dahiya, 2017), service solutions (Chakrabarti & Luger, 2015; Dahiya, 2017), marketing (Dole et al., 2015; Shah et al., 2017) and education (Kowalski et al., 2009; Bii, 2013; Dahiya, 2017). Machines now execute jobs that are usually done by humans (Peirson-Smith, 2017); thus, implementations of CB in banking industry leaves the question of what tasks will be replaced by it. The Swedish banking industry has started their journey with CB, where the vast, established banks are taking the lead and are implementing the technology in different areas of their organizations (Lindström, 2017).

With all the failed IT projects (Balogun & Hope Hailey, 2014) and the lack of research on organizational implementation of CB, it is of importance that this phenomenon examines. Aspects that are crucial when implementing new technology in an organization are the company’s vision, anchoring in the organization and the value of the technology (Loebbecke & Picot, 2015). When investing in the technology, the project team has to take different phases into account to make the implementation successful. Managers must go through the phases and evaluate how the new technology adopts in the organization. There are various ways of assessing new technology (Aljukhadar, Senecal & Nantel, 2014) and because the nature of the CB as a continually evolving technology (Singh & Shree, 2017) this needs to be examined. However, to do this, the organization have to recognize what kind of support or task the technology is supposed to do, as well as following the process of the implementation.

1.3. Purpose
The purpose of this study is to analyze how a Chatbot is implemented internally in a Swedish bank, with the aim of exploring and identify possibilities and challenges.

1.4. Research questions
- What expectations are there of a chatbot from an organizational perspective?
- How does a bank use a chatbot for internal use?
- What, and if, are the challenges with a chatbot, internally, in a bank?

1.5. Research delimitations
This thesis was limited to the scope of analyzing the project team perspective and not to future perspective, e.g., employee, customer or developer. That choice was because the CB technology mainly has been studied from the user’s perspective (Chakrabarti & Luger, 2015; Dole et al., 2015; Shah et al., 2017) or from a technical point of view (Hill, Ford, & Farreras, 2015; Dahiya, 2017). Furthermore, when the technology is more established in the organization, the user perspective can be more appropriate and complementary to this thesis.
1.6. Structure of the thesis

- **LITERATURE REVIEW**: Chapter 2, consists of a review of the literature concerning the area of *Chatbot technology*, *New technology*, and *Task-Technology fit model*.

- **METHODOLOGY**: Chapter 3, present the methodology to fulfill the study's purpose and answer the research questions.

- **FINDINGS**: Chapter 4, brings the empirical findings from the conducted interviews.

- **ANALYSIS**: Chapter 5, presents the analysis of the empirical findings and the literature review.

- **DISCUSSION & CONCLUSION**: Chapter 6, presents a discussion and the conclusions along with answering the research questions. It ends with contributions, limitations, and suggestions for future research.

*Figure 1. Structure of the thesis.*
2. LITERATURE REVIEW

This chapter consists of a review of the literature concerning the area of CB technology, new technology in organizations and models for examining technology.

2.1. Chatbots

Artificial Intelligence (AI) is a hot topic in the 21st century, and many companies are trying to follow this trend. Nevertheless, Simons (1957) was one of the first researchers who defined AI and its possibilities already in the 50s; that machines could think, learn and create – simultaneously, reiterate and significantly faster than a human brain (Leavitt & Whisler, 1958). Though, it is not until more recent years that the technology has had its breakthrough. AI is the technology that has the intelligence similar to a human in specific areas of language understanding, programming or diagnostic decision support (Kerly, Hall, & Bull, 2007; Nilsson, 2014). Tirgul and Naik (2016) described AI as a branch of science that combines different research fields, including mathematics, psychology and computer science. The programs reside on computers, microprocessors or microcontrollers that learn from experience through incoming data and basic structures (Tirgul & Naik, 2016, Oana et al., 2017).

AI is an umbrella term and includes different subcategories that differ between researchers (Tecuci, 2012; Pannu, 2015; Strong, 2016; Oana et al., 2017). One example is Pannus’ (2015) classification including language comprehension, learning, customized systems and problem-solving. However, an interesting part is not how AI is divided, but more what AI can do and be applied (Tecuci, 2012). One of the subcategories is CB technology, which is widely popular and has a purpose of mimicking human conversation (Dole et al., 2015; Dahiya, 2017). It is a technology that is defined by several different titles, including Machine conversation system (Shawar & Atwell, 2007), Virtual assistant (Dale, 2016; Dahiya, 2017), Digital assistant, Conversation interface or Chatbots (Shawar & Atwell, 2007; Dale, 2016).

Previous research has primarily focused on the technical aspects of design and implementation in specific ICT infrastructures (Hill et al., 2015; Kane, 2016; Dahiya, 2017; Shah et al., 2017). Results showed that CB can differ in complexity, but that even a very simple CB is useful and can handle specific tasks (Dahiya, 2017). Other areas where CB has been studied are in education and learning, where the variables’ repeated behavior and the correctly answered questions were tested. Results revealed the importance of training the CB correctly because otherwise it will only give wrong output and is otherwise too simple for the purpose (Kane, 2016). Researchers have had a more technical approach for research of CB, as Shah et al. (2017) created a CB for banking customer services. The underlying programming medium was tested as well as pattern matching techniques. The potential of a CB is to release resources (Dahiya, 2017), make processes more effective (Kane, 2016), and increase accessibility (Shah et al., 2017). A CB is a software program that engages in artificial intelligence through a text-based medium, e.g., Natural Language Processing (NLP) (Shawar...
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& Atwell, 2005; Shawar & Atwell, 2007; Kerly et al., 2007; Chakrabarti & Luger, 2015; Dale, 2016; Dahiya, 2017). Chatbots work every day, all year round and does not take overtime payments (Peirson-Smith, 2017).

2.1.1. Communication with Chatbot
Natural Language Processing (NLP) is used to understand, interpret and reproduce what the user is communicating to the CB (Kerly et al., 2007; Singh & Shree, 2017). A conversation with a CB might be simple; it answers questions in the users’ natural language (Pannu, 2015; Dahiya, 2017). The conversation is taking place in text-form through inputs from customers and outputs in the form of the CB (Shawar & Atwell, 2007; Dole et al., 2015). The CB interprets the inputs to understand the user intention while trying to imitate a human conversation (Dahiya, 2017). NLP technology enables voice and text recognition in performing various tasks (Kerly et al., 2007; Singh & Shree, 2017). Famous examples of NLP are Google Translate, IBM Watson and Facebook's messenger (Cambria & White, 2014).

Singh and Shree (2017) explain, when using NLP, syntax, semantic and pragmatic are essential aspects for researchers to understand how knowledge transfers from human to machine. Cambria and White (2014) concluded in their research that even though NLP is a well-used medium and can manage knowledge, it has shortcomings when it comes to interpreting intentions, emotions and user’s backgrounds. Language understanding has in turn sub-categories such as semantics and natural language question answering information processing and information publication (Cambria & White, 2014; Pannu, 2015).

2.1.2. Training a Chatbot
A vast amount of data is required in order for an AI driven CB to work independently and answer questions correctly. This means millions of asked questions and answers before the CB can perform its task/tasks without a human involved. CB is learning how to communicate from this training data. The more data it receives, the smarter it will be perceived. (Singh & Shree, 2017; Rahman et al., 2017) In previous studies, it has been found that the entire organization needs to be involved in training the CB to get the vast amount of data that is required (Kowalski et al., 2011; Bii, 2013). Neff and Nagy (2016) describe how Microsoft released their CB, Tay, and let Twitter users train Tay. This project was quickly shut down because Tay started to produce inappropriate tweets. This was an effect of the training data that users of Twitter fed Tay with. Neff and Nagy (2016) identified two factors that made the Tay project fail: the organized group of users and the specific culture of the platform. By design, users can through the input of text add attributes and personality to the CB until the algorithms behind the CBs make mistakes, e.g., give out inappropriate answers and statements. Only then can the developers discover that the wrong training inputs have been used. That gives the users, with their training data, the power to affect the CB outputs. In Tay’s case, a group of organized users and a platform-specific culture turned code that functioned well in another context into an embarrassment for the designers who produced it (Neff & Nagy, 2016).
The intelligence in an AI driven CB allows it to understand and solve user problems and at the same time learn, which by extension makes it an expert in a specific area and not expert in general. The limitations of it are found in its ability to develop discussion with the users beyond the historical data it has learned from. (Hill et al., 2015). Some AI researchers have undermined the complexity of the human language. The obstacles for computers to understand the meaning of words and the endless amount of expression of how words make up sentences have complicated the development of good CB. (Hill et al., 2015) Before constructing a CB it is important to consider and analyze thoroughly who the audience is going to be. That will, in turn, produce a more human-like effect that can lead to positive experiences of the users intend to use the CB. (Kowalski, Pavlovska & Godstein, 2009)

2.1.3. Chatbots in workplace
CBs have changed how workplaces communicate and how employees work (Lee, Frank, Beute, De Kort & IJsselsteijn, 2017). They are used to free resources by taking over functions and tasks that people would otherwise perform. Lee et al., (2017) describe how it is built on platforms with specific purpose. In many cases, they are used as a service solution to answer questions about products, support, and initiative of a company (Chakrabarti & Luger, 2015; Dahiya, 2017: Lee et al., 2017). Domains where CBs are applied are e.g., e-commerce, marketing (Dole et al., 2015; Shah et al., 2017), education (Kowalski et al., 2011; Bii, 2013; Dahiya, 2017), healthcare (Dahiya, 2017), and mental health (Cameron et al., 2017).

Today, when utilized in the banking and insurance industries, CBs are primarily used on the company’s web pages to provide information about their products and/or to propose loans and insurance based on customer needs (Dole et al., 2015; Shah et al., 2017; Dahiya, 2017). It is a chat feature located on the bank's digital platform and serves as a twenty-four-hour service for the customers (Tinnilä, 2012). Using technologies to help employees in customer service is an investment that streamlines work and enhances the quality of service (Ray, Muhanna & Barney, 2005; Dahiya, 2017). It can also be used to shorten response times, increase service experience, increased satisfaction and customer commitment (Radziwill & Benton, 2017). The importance of delivering high-quality customer service in twenty-four hours has increased (Ray et al., 2005; Tinnilä, 2012) and this can be solved using a CB. People in organizations today not only work with people, they also work with information systems (Lee et al., 2017).

2.2. New technology in organizations
Loebbecke and Picot (2015) described that for several years it has been discussed how IT and digitization changed organizational structures and how new forms of work distributions have been created. In addition, they emphasize that digitization brought brand new business models for organizations in the same way the automation did a few decades ago (Peirson-Smith, 2017). Innovations are considered as a source of competitive advantage and economic growth (Linton, 2002; Tushman & O’Reilly, 2002; Oana et al., 2017). As the researchers described above, organizations have changed their business models and working environment, leading to a rapid transformation (Todnem, 2005). New technology can be defined as an innovation
implemented in an organization (Damanpour & Schneider, 2006). As Wong and Ladkin (2008) explained, for product innovation to be successful, the project team in charge of the technology efforts, behavior, and creativity are crucial. Damanpour and Schneider (2006) incorporate three phases of innovation/new technology application - adoption, implementation and use.

Wilson et al. (2017) explained that since around the 2000s, AI has improved and there is a well-founded current belief that AI may threaten many jobs. However, Grudin (2017) believes that employees best perform their tasks with an AI instead of seeing the superior in the technology or human alone. Dale (2016), on the other hand, points to Digital Employees (DE), which is a current phenomenon that has the potential to replace human employees with help of AI technology. He gives examples of DE who help and perform specific tasks like booking a flight, previously made by people. The goal may be that a digital employee takes over any of the tasks previously performed by employees (Lee et al., 2017). Data from databases help the DE learn how to answer customer questions more accurately than a human employee. It happens much faster and saves both time and money for companies using the technology (Dale, 2016).

In order for traditional companies to cope with competition from start-ups who start their journey with AI, they should be open to opportunities such as new information and communication technology. The technology becomes a trusted colleague instead of a tool that the user has as a device. (Accenture, 2017) When organizations start their process of investing in a new technology, they need to find out what they want to do with it and if it may change structures in the organization (Orlikowski & Hofman, 1997; Bouwman et al., 2005; Todnem, 2005). They would, preferably, consider if the new technology will match the business processes e.g., do they have to change their current hardware or software, and can it be integrated into their existing ICT structures (Hill et al., 2015; Kane, 2016). The introduction of a new technology into an organization is considered to be the phase in which positive decisions are made, for example, the purpose of technology is translated into activities aimed at determining the actual use of it in the organization (Umble et al., 2003). Bouwman et al. (2005) define the phases of internal strategy formation, project definition and activities related to technology.

![Figure 2. Different levels of analysis by Bouwman et al., 2005, p. 31.](image-url)
2.2.1. Adoption

Some changes for organizations come from regulations, environment or in implementing new technologies (Bouwman et al., 2005). The latter, new technologies are usually a challenge for organizations (Aral & Weill, 2007). Its success depends, for example, on how an organization adopts, implements and executes the technology. The adoption phase consists of activities as searching for solutions, becoming aware of existing innovations and identifying suitable innovations (Rogers, 1995; Damanpour & Schneider, 2006). The organization also becomes aware of the new technology and forms an attitude towards it and evaluates whether or not they should invest. The adoption phase is multidimensional and influenced by various factors, including: the individuals and organizations that adopt the innovation, environmental elements and attributes of the innovation itself (Rogers, 1995; Frambach & Schillewaert, 2002). A technology will never fit in with the user environment from the start, as it is an ongoing process of change (Bamford & Forrester, 2003) and conscious mutual adjustment. Therefore, the adoption process is necessary. It is a mutual interaction between the technology, the user and the context (Bouwman et al., 2005).

Technology evaluates primarily on how it fits the organizations current processes and structures and what people do with these technologies. They claim that the technologies that fit the existing processes and structures, as well as people’s behavior, are those that will be implemented. Bouwman et al. (2005) believed that the effects of technology on people and organization could never be determined in advance. Often, the technology offers more possibilities than was originally expected, as it changes the organization. It is not de facto that these positive effects are achieved, which appears to be an interesting interaction between technology and organization. (Bouwman et al., 2005)

2.2.2. Implementation

Implementing a new technology can be considered a success if it is accepted and integrated into the organization (Rogers, 1995) and if a lot of users continue to use it (Frambach & Schillewaert, 2002). Implementation can have various definitions, but in this thesis the definition from Bouwman et al. (2005) is used: the step between adaption (the decision to acquire new technology) and the phase where the new technology is either used or rejected. This phase is extraordinary because it is about how people change their behavior regarding the technology, from the refusing, ignoring or avoiding it. Leaders are fundamental when a change occurs due to their effort to transfer people, individually or as a group, from one state to another (Elrod & Tippett, 2002). Leaders serve as a role model and demonstrate that organizational change is possible and guide the followers.

This phase may be, for example, to install software and is a phase that is mainly related to organizational problems (Bouwman et al., 2005). As, Van de Ven (1986) noted: “Innovations not only adapt to existing organizational and industrial arrangements, but they also transform the structure and practice of these environments” (p. 591). This process should not be taken easily, Balogun and Hope Hailey (2004) claim that over half of all IT projects either fail or get cancelled completely. Consequently, all implementation processes do not occur in a
planned way, and often they will be a result of an emerging change (Orlikowski & Hofman, 1997). An implementation strategy is necessary to counteract resistance, conduct training and familiarize users with the technology in order to use it in a meaningful way. Proper and successful technical implementation is of great economic importance (Linton, 2002; Tushman & O’Reilly, 2002). The high failure rate may be due to a fundamental lack of a valid framework of how to implement and manage organizational change (Todnem, 2005).

Research in implementation has primarily focused on if the technology realizes the desired goals of it (Linton, 2002), or to identify critical factors (Umble et al., 2003). Other have studied factors that have impacted IT implementations (Cooper & Zmud, 1990). Significantly high factors that affect the implementation are: top management support of the implementation effort, good IT design and appropriate user-designer interaction and understanding (Cooper & Zmud, 1990; Umble et al., 2003; Damapour & Schneider, 2006). Frambach and Schillewaert (2002) consider it important for users to accept technology, otherwise; consequences may be that they have to get rid of it.

2.2.3. Use
In the use phase project team have to consider aspects such as if and how the members of an organization start applying the new technology in their daily activities (Bouwman et al., 2005). The use of a new technology in an organization is interplay between organization, the user and the technology (Linton, 2002). There can be different goals with the use of a system and it is essential that the use of the new technology meet the goals that were emphasized in the initial phase. The goals have to be anchored in both the technology and the organization. Different expectations and experience can be expressed from the employees during the projects different phases. It is vital to adjust and modify processes in using the technology to meet the needs of the people who use it (Bouwman et al., 2005). The technology will have an effect on employees’ way of performing their tasks. Using new technologies may mean working smarter, but it is not without controversies. Technologies may improve effectiveness or add empowerment of the individual employee; at the same time can it lead to fall in productivity, feelings of uncertainty and dissatisfaction (Linton, 2002). Different types of effects after the implementation can be lined out depending on when it is evaluated and what model is used. (Bouwman et al., 2005)

2.3. Models for examining technology
In line with developments and implementations of technologies, many different models have risen to study acceptance of a technology. Factors affecting the acceptance of technologies are various depending on users and current situation (Goodhue & Thompson, 1995; Venkatesh & Davis, 2000; Staples & Seddon, 2004; Carlsson, Carlsson, Hyvonen, Puhakainen & Walden, 2006). Major and well-used models for examinations are the TAM-, UTAUT-, TPC- and TTF-model. In the field of Information Systems (IS) research, an important question has been to better understand the linkage between IS and individual performance (Goodhue & Thompson, 1995; Furneaux, 2012; Aljukhadar et al., 2014).
TAM-model
Researchers, Venkatesh and Davis (2000), use the model technology-acceptance model to study users’ acceptance of new technology. Two belief systems, “perceived usefulness” and “perceived ease of use”, are determinants when investigating the use acceptance of a new technology. It is a well-used model (Carlsson et al., 2006; King & He, 2006) within many different research fields.

The TAM-model has been used in a field study where one case involved the implementation of a software program for day-to-day activities of scheduling and personal assignments in a manufacturing company (Venkatesh & Davis, 2000). Another research used the model to do a meta-analysis of the existing research on the TAM-model and concluded that the model could be used in many different contexts (King & He, 2006). It has also been used to study subjects from various industries like manufacturing, services and financial industries and their intention of using mobile devices like laptops, cellular phones or other kinds of mobile devices (Yen et al., 2010). Wu and Chen (2017) used the model when examining students’ motivation, and intention of using online courses, and Pagani (2006) used it when interviewing CIOs or equivalent executives to understand the importance of the adoption process when using mobile devices.

The TAM-model is well used in different situations, but the model has received criticism, not considering the technology's functions, and according to Wu and Chen (2017) TAM fails to take certain technical variables in consideration. Many researchers have therefore combined the TAM-model with other models in order to capture the technical aspects as well as the individual (Venkatesh, Morris, Davis & Davis, 2003; Pagani, 2006; Yen et al., 2010; Wu & Chen, 2017). For example, the model has been combined with the Task-Technology Fit-model (TTF) numerous times, which has more of the technical aspects (Wu & Chen, 2017). According to Venkatesh et al. (2003) the TAM-model investigates different factors that affect user acceptance of the technology but, as Yen et al. (2010) argue, the model is only useful when the technology is newly implemented because when users have more experience of the system, the acceptance of it will change. In other words, the high usage frequency of a system leads to high level of acceptance. TAM-model is used when studying specific pre-known tasks an employee's perspective.

UTAUT-model
Venkatesh et al. (2003) developed an extended model that combines eight technology acceptance models to one as they term: Unified theory of acceptance and use of technology (UTAUT). This theory has not been as widely used as TAM, but many researchers have applied it when exploring user acceptance of, e.g., mobile technologies (Carlsson et al., 2006). The model aims to investigate user intention to use an information technology and latter usage behavior (Venkatesh et al., 2003; Dahghan, Moragheb & Baziyar, 2014).
Venkatesh et al. (2003) have examined four companies where new technologies, such as online meeting management system, technical manuals, and property accounting systems, were introduced. With help of the UTAUT-model, the study examined the behavioral intentions and the user’s behavior. The researchers mean that the model is useful as a tool for managers when determining the likelihood of success for new technology and in order to understand drivers of acceptance. The UTAUT-model studies behavior intention, the acceptance of a technology that has been up-and-running for some time.

TPC-model

With insight from different researchers, Goodhue and Thompson (1995) built a model that has the variables of both the attitude-technology and task-technology fit (Staples & Seddon, 2004). The model, Technology-to-Performance Change (TPC) model, examines the two aspects of users utilizing the technology and how the technology fits the task. The assertion is that the technology will have a positive impact on users’ performance (Goodhue & Thompson, 1995).

Staples and Seddon (2004) used the TPC-model when examining two systems, the first was a mandatory system that was used by librarians when cataloging, and the second was a productivity tool that was voluntary to use by students in a university. Goodhue and Thompson (1995) point to difficulties of measuring the success of IS in organizations and describes that the model lack measurements of value creation. Staples and Seddon (2004) mean that many researchers have verified the TPC-model. However, Goodhue and Thompson (1995) argued that the TPC-model is better used as a re-evaluation tool when assessing various choices. Furthermore, Staples and Seddon (2004) explain that the model cannot predict the explanatory power of the technology.

2.4. Task-Technology Fit-model

Task-Technology Fit (TTF) model is a popular model (Yen et al., 2010) that describe the relation between an individual’s decisions to adopt a particular technology and the extent to which the technology is adequate to perform the task that the individual needs to complete (Goodhue, 1995; Goodhue & Thompson, 1995; Yen et al., 2010; Furneaux, 2012; Isaias & Issa, 2014; El Said, 2015). Acceptance of IT systems plays a considerable role when companies invest in technology, in extension will the users’ acceptance be a primary factor for its success. The introduction of the Task-Technology Fit (TTF) model, by Goodhue and Thompson (1995) had its focus on the suitability of technology regarding completing tasks. Later, the model looks at how the adoption of innovative technology suits the demands of a specific task (Fuller & Dennis, 2009; Wu & Chen, 2017). Pagani (2006) wrote that technology is more likely to be adopted if it is compatible with the requirements of a specific task. Users adoption of the technology is not only decided upon the perception of the technology but also by the TTF. It is not about if the technology perceives as advanced, but if the technology can perform the task in a satisfied manner (Zhou, Lu & Wang, 2010). Regarding the model, a user only accepts the technology if it fits the user’s task and improves
the effectiveness (Goodhue & Thompson, 1995; Zhou et al., 2010; Tripati & Jigeesh, 2015; Wu & Chen, 2017).

Different types of definitions exist in the literature regarding the TTF-model. Lippert and Forman (2006) are defining it as: “The extent to which the technology provides features and fits the requirements of the task,” while Klaus, Gyires & Wen, (2003) defined it as: “The match between an information system and its organizational environment.” There are differences in the definitions of the model and consequently more research to the model would contribute with a consistent definition to the theory. However, this thesis will adopt Klaus et al. (2003) description of the TTF-model.

Figure 3. The Task-Technology Fit model by Goodhue & Thompson, 1995.

2.4.1. Previous research
Prior research performed with the TTF-model have been using research methods as survey studies (Goodhue & Thompson, 1995; Zhou et al., 2010), experimental studies (Fuller & Dennis, 2009), conceptual and/or review articles (Zigurs & Buckland, 1998; Cane & McCarthy, 2009) and case study (Cane, & McCarthy, 2009; Aljukhadar et al., 2014); and it has mainly been used in, as Furneaux (2012) described three broad categories from the previous research within TTF. The first is about individual-level survey research, aiming to improve the understanding of information systems adoption. The second streams from work that manipulates TTF to explore the impact of fit on a range of task-related outcomes. The third category is a collection of conceptual and review-oriented articles to find a new theory. Yen et al. (2010) distributed a survey and used the TTF-model when examining if wireless technology could enable users to better perform their jobs in different industries, such as banking service firms, education, and service industry. Lippert and Forman (2006) used a web survey for examined the adoption and use of a system for distribution in an automotive supply chain company.

The TTF-model has most often been used in quantitative studies (Goodhue, 1995; Goodhue & Thompson, 1995; Lippert & Forman, 2006; Yen et al., 2010; Furneaux, 2012; El Said, 2015). However, some have used the TTF-model in qualitative settings and with exploratory approaches (Lending & Staube, 1997; Cane & McCarthy, 2009; Aljukhadar et al., 2014; Rahman et al., 2017). Lending and Staube (1997) when examining task descriptions and the use of a specific technology to identify what type of tasks the technology is used for. Tripathi
and Jigeesh (2015) used the model as an evaluation tool for cloud computing technology and if it could handle different tasks in organizations. Goodhue (1995) has also used the model to study the performance impact on individuals in an organization. D'Ambra, Wilson, and Akter (2013) used the model in a qualitative approach when studying e-books as an information resource for academics and Rahman et al. (2017) used it when doing a qualitative study on simulation in training. Fuller and Dennis (2009) used the model in a team setting, where they studied groups using technology, and if it fitted the tasks. The model, as mentioned above, is in many cases used as a tool for generalizing the adoption of the technology. However, in recent years it is also used to deepening the understanding of the fit and adoption in more explorative studies.

2.4.2. Criticism to the model
The model studies the fit between technology capacity and requirements regarding tasks (Tripathi & Jigeesh, 2015). Nevertheless, in some cases, research has shown that the model considers the technology characteristics more than tasks characteristics (Yen et al., 2010). When it comes to more general task characteristics within banking, insurance or education, this will be balanced and would not affect the result (Yen et al., 2010). Lin and Huang (2008) combined the model with a social cognitive theory. They wanted to add a behavioral element that TTF-model lack, which has been criticized the most (Isaias & Issa, 2014).

However, Yen et al. (2010) describe how the TTF-model does not consider the users’ expectations of the technology. Tripathi and Jiggeesh (2015) did a quantitative study on cloud computing and the use of it and found that the limitation of the model was that it did not allow for more exploration. D’Ambra et al. (2013) found, in their study, that the model was missing navigation and output dimensions. They used previous research to identify variables for their research but stressed that further qualitative studies needed to develop the model.

2.5. Components in the TTF-model
The model consists of different components: Task Characteristics, Technology Characteristics, Task-technology fit and Individual performance/Utilization (Goodhue & Thompson, 1995; Lin & Huang, 2008). These are exchanges between tasks, technology, and individuals (see figure 3).

- **Task Characteristics:** Task Characteristics refers to the task an individual or group of individuals perform (Zigurs & Buckland, 1998; Dahghan et al., 2014). Goodhue and Thompson (1995) exemplify it with an individual, who has the task to answer lots of different and unpredictable questions about the company's operations. Another definition is actions performed by an individual turning input into outputs to satisfy information needs (D’Ambra & Wilson, 2004). It is those actions that user can use IT for (D’Ambra et al., 2013) and if the tasks are difficult to perform, it will be difficult for the technology to meet the demands (Dahghan et al., 2014). Technology acceptance does not depend solely on users understanding and attitudes towards the technology, but also on the fit between tasks and technology (Zhou et al., 2010). In
other words, if the technology will be accepted, it can have a positive impact in cases where it fits and supports the tasks. Tasks that have been studied with the model are, e.g., web usage to resolve uncertainty for personal travel (D’Ambra & Wilson, 2004), e-book as learning tools for information retrieval (D’Ambra et al., 2013) or to planning personal traveling (Dahghan et al., 2014).

• **Technology Characteristics:** Technology Characteristics is defined as the technological tools people use to carry out their tasks (Goodhue & Thompson, 1995; Yen et al., 2010; Dahghan et al., 2014; Tripathi & Jiggeesh, 2015; El Said, 2015). Technology characteristics can affect the use and perception of it. For example, accessibility of the technology or how quickly users get answers from the system (D’Ambra & Wilson, 2004). Information system research is commonly about computer systems in form of hardware, software, data and users' support services in form of training (Goodhue & Thompson, 1995; D’Ambra & Wilson, 2004). When examining in one of the fields noted above it refers to this component of the model (Isaias & Issa, 2014). Technologies that have been studied with the TTF-model are e.g., portable reading devices (hardware) (D’Ambra et al., 2013) or cloud computing system (software) (Tripathi & Jiggeesh, 2015).

• **Individual performance/Utilization:** Individuals can use technologies to support their work in completing tasks. There are factors that affect the individual and this may include training in systems, computer skills or motivation (Tripathi & Jiggeesh, 2015). This component studies how achievements from individuals improve efficiency and higher quality in performing their duties (El Said, 2015). Utilization is about the behavior of using the technology for completing tasks (D'Ambra & Wilson, 2004; El Said, 2015). The technology usage is binary in this model, which means the user is either using or not using the technology. The number of times a user uses the technology is not considered, it is more a question if it is used. This component is affected by factors as e.g., training in systems, computer skills or motivation, these in turn influence how well or easily the technology are used. (Goodhue & Thompson, 1995)

• **Task-Technology Fit:** Component Task Technology fit relates to the degree to which a technology supports an individual's performance (Yen et al., 2010; Wu & Chen, 2017). The component refers to how requirements, individual's abilities, and technology functionality matches one another (Fuller & Dennis, 2009). D’Ambra et al. (2013) wrote that there must be some form of fit (match) between a specific task and the technology selected to complete the task. TTF is reduced when the gap between functionalities of the technology used to perform the task and requirements of a given task become too large. On the other hand, TTF is high when the gap is small, and therefore the technology is adequate (Goodhue & Thompson, 1995). D’Ambra et al. (2013) declare that the model is useful when the objective is to explore the adaption and the behavior of users of an IT device in a particular setting.
2.6. Theoretical framework

The theoretical framework (Figure 4) was inspired of the models: Task-Technology Fit-model (Goodhue & Thompson, 1995) and the framework, different levels of analysis for implementing a new technology in organizations (Bouwman et al., 2005). The adoption-, implementation-, and use- phases are parts from the organization's perspective of implementing a new technology (see figure 4). The different levels that the framework consists of are environmental, organizational and individual. Variables in the adoption phase are affected both by trends in the environment and expectations from the organization. In the implementation phase development, training and underlying technology are affected and a part of the organization like as an individual level. The use occurs when a user employs the implemented technology, and variables in this phase consist of application, challenges and changes for the individual and the organization. (Bouwman et al., 2005) In order to succeed with implementations of a new technology, it needs to be evaluated. The TTF-model has been helpful in prior research when identifying tasks performed by the technology. Thus, the TTF-model is adapted to an individual level because the fit between the technology and task can be identified when the individual uses the technology (see figure 4). A possible fit can be evaluated after the technology has been used in order to analyze effects on the organization and the individuals (see figure 4). The variables of the TTF-model: Tasks characteristics, technology characteristics, individual performance/utilization and task-technology fit are incorporated in the framework as underlying parts of the TTF-model component. The effects of the implementation affect all the different levels and include the results of the implementations (Bouwman et al., 2005).

![Figure 4 Theoretical framework](image-url)
3. METHODOLOGY

This chapter presents the chosen methodology to gather the necessary data and information to fulfill the purpose of this thesis and answer the research questions. The chapter reveals arguments for choices of research approach, research strategy, study objects, data collection method, data analysis method and critical considerations and limitations.

3.1. Research Approach
The thesis purpose is to analyze how a Chatbot is implemented internally in a Swedish bank, with the aim of exploring and identify possibilities and challenges. An exploratory research approach has been selected for this thesis, as this is a new phenomenon in organizations, the area has not been reviewed to a greater extent. An explorative research approach is used when studying the new phenomenon and seeking insight into it. This method was helpful to understand the phenomenon from different perspectives through different lenses, thus enhancing the research. (Slevitch, 2011)

3.2. Research Strategy
A qualitative research strategy was selected to understand and explore the field. An organization is a social context where the CB technology was implemented. An underlying premise for qualitative research is that social science should deal with the social world and it differs from the objects of science (Bryman & Bell, 2013). When trying to explore the possibilities and challenges with the implementation, a qualitative strategy was necessary. Furthermore, the social science focuses on words, individual experience and social reality (Bryman & Bell, 2013). The overall aim when using a qualitative research approach is to acquire a better understanding of the phenomenon from the respondent’s point of view (Slevitch, 2011). Since this research focuses on organizational perspective, it was classified as a social science, which opened the door to study the CB technology from different perspectives in order to get a holistic view of the phenomenon.

When using a qualitative research, the intention is to find depth, richness and subjective data (Slevitch, 2011). The purpose was to analyze how CB implements in a new context. The consequences of using qualitative methods are among other things: the subjective perspective and exclusion of generalization (Bryman & Bell, 2013). This made the results from the study applicable only on the specific object of study. Nevertheless, a qualitative method must be applied, as the phenomenon must be understood before it can be generalized. Therefore, a qualitative research strategy is appropriate.

Different types of methods can be used when performing qualitative research, e.g., case studies, observations, narrative research and so on (Slevitch, 2011). The design was a case study, and the chosen data collection method was semi-structured interviews. Advantages of case studies are: enabling researchers to develop grounded theories that are practical and relevant, providing a broad environmental picture of the phenomena in real-world settings, and utilizing a primary data collection tool that can be used to triangulate findings with other
tools and techniques (Bamford & Forrester, 2003). The large banking corporates have been in the forefront of implementation and use of CB. However, from the researchers’ best knowledge, little research has been made in this area, which made a case study a suitable examination strategy. Moreover, the case study method allows for interpretation of the respondent’s perspective on a specific situation or object (Slevitch, 2011; Bryman & Bell, 2013). Furthermore, case studies also allow researchers to interpret social relations and processes that take place in a certain context (Yin, 2003). This method is useful when the phenomenon cannot be separated from the context (Bryman & Bell, 2013). The three deliberations above enabled for this thesis to examine one context where CB has been implemented with the intention of analyzing and identify the phenomenon in the selected organization/context. Interview questions required respondents to talk about “how” and “why,” which could be answered from many different perspectives and depending on whom you are asking. That is something case study design is appropriate for (Yin, 2003).

3.3. Method

The chosen method was made to reveal the analysis of how a CB is implemented internally in a Swedish bank and respond to the research questions. First, criteria were determined to select study objects (see 3.4). Respondents in the chosen organization were assigned through a contact person based on selected criteria (see 3.4.1). An operationalization was made to formulate the pre-written interview guide and is based on the literature review in chapter two. The data collection consists of two phases. In phase one, a pre-study was conducted with experts in the field of CBs (presented in 3.6.1). In phase two, interviews with the respondents took place (presented in 3.6.2). The data analysis method describes how the collected data are analyzed. Critical considerations and limitations are presented in the end (see figure 6).
3.4. Study objects
In the process of selecting the study object, organization, three criteria were used. The first of the overall criteria was that the company had to operate in the financial market due to the lack of implementations in other industries. The second was that they had to have completed an implementation of a CB and used it for a designated period of time. The third and final criteria was that they had time to conduct interviews identifying why they implemented a CB, as well as the expectations, uses, and challenges. A total of five companies were found and assessed with the criteria. Two of the organizations had not yet completely implemented a CB. One of the other selected companies did not have the time for interviews, and another one did not use CB technology and had no plans to implement it in the near future.

SEB was contacted and fulfilled the criteria and eventually agreed to collaborate. SEB acts in the banking system and offers their clients pension savings, loans, insurances, and more. They belong to one of the large banks in Sweden and act internationally with offices in over 15 countries. SEB has more than 15 000 employees in total around the world. In autumn 2016, the company released its CB project. A contact person was provided to handle the administrative part of the organization. In a close collaboration, the needs and criteria on the respondents were expressed and the contact selected respondents based on the criteria. Organization respondents had a desire to be treated with anonymity. General information about the company, may however, be disclosed, but in-depth information will not be communicated.

3.4.1. Respondents
The purpose was to contact people involved in the CB project to identify and analyze the implementation of a CB, as well as the related possibilities and challenges. A criterion in selecting respondents was to get various perspectives from employees who had diverse roles in the project team within the CB project. The experience of the respondents was taken under consideration to ensure that each participant had different views in an attempt to get various and diverse perspectives. Interviews were conducted with five employees who met the criterion for the respondents. Table 1 below, presents information about how and when the interviews were conducted, which positions they had in the project, and information about their roles.
### Table 1. Respondents

<table>
<thead>
<tr>
<th>INFORMATION</th>
<th>RESPONDENT</th>
<th>ABOUT THE RESPONDENT</th>
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</thead>
<tbody>
<tr>
<td>Interview 1, (Telephone) 2018-03-15</td>
<td>Sub project manager.</td>
<td>The Sub project manager was responsible for various leads in the CB project. She supported the implementation and supports these activities in the organization today. She also worked close to the Project manager with issues in technology integration issues concerning the CB to work with other systems. The Sub project manager could provide an operational perspective of the project.</td>
</tr>
<tr>
<td>Interview 2, (Face-to-face) 2018-03-16</td>
<td>Project manager.</td>
<td>The Project manager was leading on an operational level during the introduction of the CB in the business environment. He was also responsible for the entire implementation of the CB in the organization. The Project manager contributed with a management perspective.</td>
</tr>
<tr>
<td>Interview 3, (Face-to-face) 2018-03-26</td>
<td>Operative sponsor.</td>
<td>The Operative sponsor has been the leading person in the introduction of the CB and was responsible for the procurements. She worked in the CIO function with IT strategy and worked closest to the distributors. The Operative sponsor contributed with knowledge of the CB’s purpose and a strategic perspective.</td>
</tr>
<tr>
<td>Interview 4, (Telephone) 2018-04-05</td>
<td>Assistant service manager.</td>
<td>The Assistant service manager worked with internal IT-related topics; he works closely with the CB provider and has budget responsibilities. Assistant service manager contributed insights into the development and challenges of the project.</td>
</tr>
<tr>
<td>Interview 5, (Telephone) 2018-04-06</td>
<td>Change leader.</td>
<td>Change leader worked with change management in various functions within the organization. Change leader had a leading role in the change management during the introduction of the CB. Change leader had input about communication and expectations in the project.</td>
</tr>
</tbody>
</table>

Even though the respondents were part of the CB-project group, which could have meant that they were biased and had subjective opinions towards the CB, this was taken under consideration from the authors. Furthermore, due to time and access limitations this study was not able to carry out interviews with users outside the project group. Though, these circumstances have not affected the implementation process or the functionality of the CB.
3.5. Operationalization
The structured interview questions were created based on a pre-written interview guide. The purpose of the interview guide was to be able to conduct interviews with all respondents in a similar way to see if the answers differ depending on their roles in the project (see appendix 1 - interview guide). By asking the same or similar questions to all respondents, there were the ability to compare responses to one another and draw conclusions based on respondents’ response (Bryman & Bell, 2013). Open questions were conducted to gather the respondents’ experiences. This is a flexible approach with the ability to ask follow-up questions to help understand or let the respondent explain further.

The interview questions are based on the literature review described in chapter two (see table 2). To formulate questions, previous research (Goodhue & Thompson, 1995; Zigurs & Buckland, 1998; Bouwman et al., 2005; Damanpour & Schneider, 2006; Dahghan et al., 2014; El Said, 2015;), was used to ensure that the chosen method was tested. The pre-written interview guide was based on theories of new technology in organizations, CBs, and Task-technology fit model. Theories from new technology in organizations contributed with questions to explore the process of how a new technology can be introduced in an organization. CB theories were used to ask questions related to the technology. Task-technology fit model was used to identify what type of task this new technology executed. The choice of using the TTF-model, compared to other examination models, was because previous research have proven that the model is suitable for identifying tasks for which the technology is used and related for. Questions were divided into five categories: The New Technology category contributed with questions to understand the process of how to introduce new technology in an organization including questions regarding adoption phase, implementation, and the effects of it (see table 2). The Task Characteristics category included questions in order to understand what tasks the respondents are performing before CB implementation, how they are performing today etc (see table 2). The goal is to understand how they were previously working, and how they perform the tasks after the implementation. The Technology Characteristics category is used to understand how they use the CB to perform the specific tasks in the previous category (see table 2). The Individual use/Utilization category was intended to catch how the CB is affecting their work performance and how they are using it to support their tasks (see table 2). The Chatbots category included questions in regard to the CB. In total 18 questions were asked with appurtenant supplementary questions (see table 2). The questions intend to provide data to analyze in order to answer the research questions.
<table>
<thead>
<tr>
<th>CATEGORY</th>
<th>QUESTIONS</th>
<th>THEORY</th>
</tr>
</thead>
<tbody>
<tr>
<td>New technology</td>
<td>- What expectations did you have on the CB, before the implementation?</td>
<td>Tushman &amp; O’Reilly, 2002; Bouwman et al., 2005; Damanpour &amp; Schneider,</td>
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<td></td>
<td>- Which areas do you think the CB can be applied to in your organization?</td>
<td>2006; Loebbecke and Picot, 2015.</td>
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<td></td>
<td>- How has the CB transformed your organization?</td>
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<td></td>
<td>- What challenges have you faced using the CB?</td>
<td></td>
</tr>
<tr>
<td>Task characteristics</td>
<td>- How would you describe the tasks that the CB should perform?</td>
<td>Goodhue &amp; Thompson, 1995; Zigurs &amp; Buckland, 1998; D’Ambra &amp; Wilson,</td>
</tr>
<tr>
<td></td>
<td>- How were these tasks performed before the CB?</td>
<td>2004; Dahghan et al., 2014.</td>
</tr>
<tr>
<td></td>
<td>- Are there other tasks you would like the CB to help out with, that it does not do today?</td>
<td></td>
</tr>
<tr>
<td>Technology characteristics</td>
<td>- Can you describe the CB that you are using today?</td>
<td>Goodhue &amp; Thompson, 1995; D’Ambra &amp; Wilson, 2004; Yen et al., 2010;</td>
</tr>
<tr>
<td>Individual use/Utilization</td>
<td>- How is the organization using the CB?</td>
<td>Goodhue &amp; Thompson, 1995; D’Ambra &amp; Wilson, 2004; Tripathi &amp; Jiggeesh,</td>
</tr>
<tr>
<td></td>
<td>- What expectations did you have on the use of the CB, from the employees’ usage?</td>
<td>2015; El Said, 2015.</td>
</tr>
<tr>
<td></td>
<td>- How do you use the CB to support your tasks?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- How often do you use the CB?</td>
<td></td>
</tr>
<tr>
<td>Chatbots</td>
<td>- What kind of help do the employees get from the CB?</td>
<td>Pannu, 2015; Dale, 2016; Wilson, Daugherty &amp; Bianzion, 2017; Dahiya,</td>
</tr>
<tr>
<td></td>
<td>- What knowledge did you have about the technology before the project?</td>
<td>2017; Singh &amp; Shree, 2017.</td>
</tr>
<tr>
<td></td>
<td>- How do you interpret the CB?</td>
<td></td>
</tr>
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</table>

Table 2. Operationalization model made by the authors
3.6. Data collection
Data collection consists of two phases: in phase one, a pre-study was conducted in the initial phase of this thesis. In phase two, the primary data collection from interviews with respondents working in the organization was conducted. The data collection was the basis of the result section in the thesis.

3.6.1. Pre-study
A pre-study was conducted where three interviews with experts shaped a foundation of empirical understanding for this thesis. Experts in the field shared their knowledge about different projects they had been working on regarding CB within their respective fields (see table 3). Different individuals appeared when searching online after chatbots. Criteria for the experts were that they needed to have experience in CB technology of any kind. Emails were sent to those who could contribute with knowledge. Three experts had a great deal of knowledge about CB technology with different backgrounds and experiences (see table 3).

<table>
<thead>
<tr>
<th>EXPERT</th>
<th>ABOUT</th>
</tr>
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<tbody>
<tr>
<td>Victor Nieman, Chatbot developer, Accenture, E-mail &amp; Lecture</td>
<td>He contributed to technical aspects of how CBs develop and where they are mainly implemented. He shared material about CBs from his lectures in the organization he worked in.</td>
</tr>
<tr>
<td>Sarah Lidé, Consultant, PWC, Telephone communication</td>
<td>Her role as an industry specialist in healthcare contributed to an understanding of how they looked at using CB technology in healthcare. She was the person who introduced us to the contact person at the studied organization.</td>
</tr>
<tr>
<td>Martin Kedbäck, Project manager, Swedbank, Telephone communication</td>
<td>He has been the leading person in Swedbank’s work with CB technology. He shared information about their CB Nina. This shared an understanding of problems encountered in their organization and what tasks they wanted to use their CB for.</td>
</tr>
</tbody>
</table>

Table 3. Pre-study interviews with experts.

The purpose was to contribute knowledge and to create understanding for the field of AI and CB technology. The pre-study contributed inputs on what the reality of the industry looks like and which companies use CB technology. Against this background, a research approach and strategy took shape.
3.6.2. Interview process
Two of the interviews were held at the company’s office and three were conducted by telephone. Interviews at the office were conducted face to face in a booked meeting room. The interviews were held in Swedish and translated into English. Both writers of this thesis participated in each interview. One of the thesis authors was responsible for asking the questions, the other was responsible for transcription of the interviews and took notes. Both asked supplementary questions to understand the respondent and deepen their answers. The transcripts were audio recorded with a smartphone during each session. The sessions of each respondent lasted between 30 minutes and up to 1 hour.

Before the interviews, respondents received information about the purpose of this study, the promise of anonymity and why they were chosen. This was done to make them comfortable and as a confirmation that they understood the intentions of the interview. At the beginning of the interview, questions about the respondent’s background were asked in order to get to know them. Thereafter, the interviews were conducted based on the interview guide; some follow-up questions were necessary to receive developed and more profound answers. Since promised anonymity, respondents are called their role in the organization/project: Sub project manager, Project manager and so on (see 3.4.1. Respondents).

3.7. Data analysis method
According to Yin (2003), when analyzing data from a case study, there is no definitive strategy or technique. This statement has been highly considered in this thesis and the awareness of data limitation in this study, limited to only one company or case, has thus been considered. Since all interviews were based on the same questions and interview guide, the collected data could be treated equivalent. Treatment of the interviews was done in three steps to be consistent in order to not miss out on any individual’s parts. Step one was to transcribe the interviews immediately after execution, it was done to have everything in text and to capture all spontaneous impressions and interpretations. This was as Bryman and Bell (2013) suggest, not distorting respondents’ responses and thereby creating an incorrect feeling. In step two everything was printed out and the interview data was joined in themes in different clusters to help visualize and compare all the respondents’ answers. Codes were attached to the meaningful units to describe the purpose of that unit. The themes that were revealed were: expectations, development, application, transformation, challenges and future. The respondents' answers were presented, and their answers were placed objectively against one another. The final step in the data analysis was to find themes in the different clusters when comparing all the respondents’ answers to the literature. The analysis is based on the authors analysis model (see Figure 7). A content analysis was conducted to identify meaningful units and identify words, meanings or paragraphs that did not contribute to the purpose of this thesis. Words that were unnecessary and were not needed to understand the content in that unit were omitted. Thus, the empirical data was compared with the theoretical discussion and the pre-study throughout the whole process.
The analysis model (Figure 7) is a combination of the frameworks: *Different levels of analysis* and *Task-Technology Fit-model*. It aims to help to analyze the respondent’s responses in order to answer the research questions. Often, drivers to invest in a new technology for an organization derive from its environment (Bouwman et al., 2005). Once the organization has chosen the technology they invest in, they start phase one where the organization adopts the technology and later implements it for users to become aware of it. (Loebbecke & Picot, 2015) After the technology has been implemented, the actual use of the technology can be studied. The component ‘TTF’ (see figure 7) includes the variables: *Tasks characteristics, technology characteristics, individual performance/utilization and task-technology fit*. The TTF-model is placed between ‘Use’ and ‘Effects’ of the technology to investigate if the technology matches the task that the technology intends to support or perform. Since CB is used in a new context in this study, the TTF-model will be helpful to identify tasks characteristics, technology characteristics, which the model has helped to define in previous qualitative studies (Lending & Straub, 1997; Tripathi & Jiggesh, 2015). The last phase of the analysis is ‘Effects’ and can be studied from the use, and how well it fits the tasks, it intends to solve (Bouwman et al., 2005).

![Diagram of the analysis model inspired by Different levels of analysis combined with TTF-model. (Bouwman et al., 2005, p. 31; Goodhue & Thompson, 1995, p. 215).](image)

### 3.8. Critical considerations & limitation

As mentioned earlier there have been various critical considerations in selecting this methodology. According to Bryman and Bell (2013), researchers must consider the credibility, validity, and confirmability of their studies. The credibility of a qualitative study can be secured, e.g., through the questions asked. Previous researchers and their research to ensure credibility have deduced questions in this study. However, the authors explain that this can also contribute to subjective results. The TTF-model and organizational theory have been used to deduce the questions. The TTF-model has been used earlier in quantitative studies (Goodhue & Thompson, 1995; Yen et al., 2010; Furneaux, 2012; El Said, 2015), except in some cases when researchers studied new phenomena (Lending & Straub, 1997; Cane & McCarthy, 2009; Aljukhadar et al., 2014). Lending and Straub (1997) explained that it is possible to use the TTF-model in a qualitative setting and study a case where the researchers want to identify what types of tasks the new technology supports/perform and to understand the context. However, a qualitative approach was conducted with the mentioned model...
because as previous researchers describe, it helps identify tasks and explore the area (Goodhue, 1995; D'Ambra, Wilson & Akter, 2013; Tripathi & Jigeesh, 2015). When the TTF-model is used in a quantitative approach, tasks and context are already established. The model (TTF-model) was selected to identify tasks and analyze the fit between task and technology. The CB technology in the particular context has never been studied before and therefore this choice was made. Other well-used models for evaluation have been taken into consideration and assessment (see literature review 2.3). The authors of this thesis understand and take this into account, but the choice of a qualitative approach in combination with the TTF-model is necessary when exploring this CB technology in a new context.

The delimitation of examining one organization, in the banking industry, was made to study the phenomenon in depth; and because the selected company is at the forefront of CB implementation as well as have the advantage of having the technology implemented for some time. The future advantage of merely examining a case is, according to Slevitch (2011), the intention to find depth, richness and subjective data. This can provide valuable insights into the view of an implementation of new technology in an established company. Bryman and Bell (2013) point to the importance of reliability in qualitative research and explain the concept as the ability to carry the study again and get the same results. This study can only be compared with a similar study in a similar organization. A qualitative study is difficult to replicate, as Bryman and Bell (2013) describe, and in many cases may cause problems with generalization and lack of transparency. The authors have taken caution and have carefully examined the choices made to create a high degree of transparency to enable replication of the study. According to Bryman and Bell (2013), transparency is achieved through openness in the study process. Throughout the process, objectivity has been kept in mind, and the responses of each respondent are considered as important as the others. The method provides a thorough description of what has done, how it has done and what consequences the decisions have had.

Ethical considerations have been taken into account in this thesis. Data gathered from the interviews was handled with as high a degree of objectivity as possible in order to not analyze the data in a subjective manner. In respect to the respondents, they chose the place and time to conduct the interviews to satisfy their needs before the authors, and to respect their time. Respondents asked for anonymity, therefore when handling the data, they are referred to their role. Their name has therefore never been mentioned in this study. Respondents were sent a copy of the transcribed material beforehand to approve their responses. That enabled the respondents to go through the data, so it was used effectively and ethically. Responses were handled alike throughout the data analysis method.
4. EMPIRICAL DATA

This chapter takes findings from the empirical data collection. Findings from the conducted interviews are presented. The discoveries start with a presentation of the CB project, followed by the themes identified from the empirical data.

In late 2015, the organization started their journey within AI; a project was initiated to create a CB technology to support internal functions in SEB. Which was in line with their vision of becoming more digitized. At the time, there were great buzz around AI, which lead to a curiosity within their organization. The system they invested in was an AI agent. The name of the AI agent was invented through a contest where the company’s employees were involved and submit their contributions. The winning grant was a playful combination with AI and Aid - Aida. At first, they created a front-line function where employees could receive help with IT-related issues to perform their tasks. Aida was introduced as a trainee to the organization and received assistance from 26 employees, which were almost the entire IT service desk department. They provided her with the frequently asked questions and answers.

“Should we do that when we get a new employee, we do not. You get one mentor and not twenty-six to help one person.” (Project manager)

SEB run an Aida-pilot during summer 2016, where she was tested on 700 employees with success and grew rapidly. Aida was extremely good at performing the chosen tasks and learnt easily. The managers saw great potential in other business cases she could be applied to and she has been requested to work at other departments (Sub project manager-Operative sponsor).

4.1. Expectations

At first, SEB had no experience of either AI or this kind of conversation-driven technology (Project manager). The project group who started the initiative entered with an attitude that they had no knowledge of the subject but that they wanted to explore it (Project manager). The project group consisted of employees with different backgrounds who were curious and interested about the technology, how it could contribute to the business, and worked together in the exploration (Project manager). Expectations were not strictly formulated from a strategic point of view of the Aida project; this was because Aida was not a traditional project with deadlines and a project plan, instead as a research project (Operative sponsor). Moreover, the project group had always had top management support (Project manager). The underlying technology of Aida was in its infancy when the project started (Operative sponsor), and they started from scratch (Sub project manager, Project manager & Operative sponsor). Strategic expectations from the organization were, according to Change leader, to be a part of the trend of AI and that might attract new employees. However, the Sub project manager expressed that she did not have very high expectations of what Aida would be able to do. Before the implementation of an AI, it is essential to understand the organizational needs before choosing the solution (Sub project manager).
After the implementation of Aida in the organization, new expectations arose. It was important not to believe AI will solve all the problems that exist in the organization (Sub project manager). Manager expectations were that Aida could address several issues immediately when hired. Some employees, on the other hand, expressed to the Project manager that they were expected to be treated by a robot and that AI could replace as much as possible (Project manager). Due to this, managers feared that resistance would occur, and employees would chat to a human instead of to Aida (Project manager & Operative sponsor). However, Project manager expressed overall that Aida has not met with resistance from her users, instead has she met curiosity and potential.

“Many had expectations that AI will come and solve everything, it is a bit like magic in a box, but then you realize that it is not magic in a box without the proper logic behind it.” (Sub project manager)

Operative sponsor described how expectations were to increase the accessibility through a twenty-four seven IT service desk. Others had hopes that Aida would be able to answer and handle all sorts of tasks due to the reason that she was an AI (Project manager & Operative sponsor). They also had expectations that she would be challenging to educate (Sub project manager & Project manager) and that they would require mathematical skills to train her (Project manager). But they were surprised how easy it was to teach her. Expectations of use have been both high and low (Project manager). When the project group received the finished product from their distributor, they thought Aida would be a more complete product than she was. She was not sufficiently knowledgeable when employed, according to an evaluation after the pilot-study (Operative sponsor). Operative sponsor stated that the employees were quite ghastly and that many expressed that Aida could not do enough.

**4.2. Development**

Before the Aida project started, the IT service desk had begun looking at areas where they could automate (Sub project manager-Change leader). They moved a service desk to Vilnius as a part of their strategic plan and Aida was their following step (Operative sponsor). In general, the organization also wanted to reduce the human errors and speed up processes (Project manager). The development of Aida was a joint venture with an external software developer, and the project group worked on different business cases where Aida had potential to be implemented in the organization. In the initial stage an automation mindset had to be in place, since they wanted to take advantage of the knowledge they had in previous automation projects (Project manager). The project group received training from both the supplier and by working in this close collaboration (Operative sponsor). Sub project manager expressed that there was no manual for this type of technology and this required the team to try out what had previously worked. Initially, when she was employed, several people trained her (Sub project manager). Aida started the project as a three-year-old comparable to a human being. The advantage was that she could learn more and faster than a human being. It did not take several years, only a few (Project manager).
"But exponentially, it does not take 20 years before it is finished, it depends on how much power you throw into the training." (Project manager)

Aida converses in English and is a conversation-driven AI; she understands the dialogue in a completely different depth said one of the project members (Sub project manager). Project manager described that the development of Aida had two interesting aspects. The first has to do with her ability to understand the users underlying intention, and that is what NLP enables. The other element is the issue of developing the CB technology to execute tasks.

Regarding the technology, Sub project manager believes Aida is at an early stage and is continuously entering new perspectives, which she has to be able to handle. Aida also needs to understand the user’s intention (Assistant service manager). Language understanding most recently changed; they have gone from script-based to use more neural networks (Sub project manager). The technology has a lot to learn and the tasks she can perform and support increases when she gets more questions and data input from the users (Change leader). Aida is, as many of the respondents expressed, in its early stage and still has a lot to learn, the Sub project manager even declare that Aida will never be full-learned.

4.3. Application

When introducing Aida to the organization, the Change leader explained, that the team held lectures and demos for the employees. Assistant service manager explained that Aida is an AI and that her job is to understand what users want to accomplish, which means there was no need for education; they only had to start a conversation to receive help from her. Project manager suspects that the fact that Aida learns quickly is something that contributed to positivity.

Aida is internally used to fulfill different tasks at their IT service desk and in Human Resources (HR). At IT service desk she, e.g., answers questions related to IT. Aida can, for instance, fix more data storage, either by guiding her users or by creating the order for them (Project manager). At the moment she is supporting her co-workers and leads the user forward in the dialogue (Change leader). Aida does not have the entire service case, but they are teaching her like a regular employee in areas to be helpful in (Sub project manager). In the HR department, she helps with reminding employees of, e.g., summer vacations (Operative sponsor). Aida is taking over these tasks, previously performed manually (Project manager & Operative sponsor). Aida can also be used in employees’ private banking errands and help with loans and pension advice (Operative sponsor).

Employees can interact with Aida via an icon on their computer or at a web page that has AI functionalities. When necessary, an information bubble appears at the icon or the web page with information about what Aida is and an explanation how she could be of help (Assistant service manager). They interact with her through a chat channel or with their voice (Project
manager). Change leader expressed how quickly it is to use Aida since it is fronted on their computers.

“NLP is essential for Aida to start a conversation. Then there are two aspects, one of which is that Aida needs to understand what my intentions are without me knowing how to express myself. The other is that Aida needs to be able to do something about it and execute.” (Project manager)

All the respondents expressed that Aida is mostly used for unlocking employees’ accounts at the moment (Sub project manager-Change leader). Several times a year, employees block their computer accounts, and before Aida was implemented they had to call IT service desk, and they had to wait in a queue: “[…] and are you unlucky you can queue up to one hour” (Sub project manager). Especially after the summer holidays, in August, queues were sometimes so long that the person calling got a message that she/he had to call back the day after (Change leader).

The use of Aida has been successful according to some respondents (Sub project manager, Project manager & Operative sponsor). Aida is still a new technology at the company. Although she is not currently executing complex tasks, there is a firm belief that she will be able to do so in the future and they see potential in the technology (Assistant service manager & Change leader). An important aspect is for Aida to complete tasks because if she only can answer questions, there are cheaper products out there (Operative sponsor). She has contributed with more efficiency for its employees; previously, they could spend 5-6 minutes before they got a hold with an agent at the IT service desk, but now Aida can answer instantly (Sub project manager - Change leader).

“The whole purpose is actually to emphasize that it is not to replace and let people go, it is about adding capacity.” (Project manager)

Even though Aida is performing tasks previously done manually, all the respondents (Sub project manager - Change leader) pointed out the importance to look at Aida as a supportive feature and not as a technology that will replace them. Project manager explained that Aida had began to perform more repetitive tasks that the employees previously performed with their "left hand," but still had to do.

4.4. Transformation
With the introduction of Aida, the organization itself has not changed much (Sub project manager, Project manager & Operative sponsor). Operative sponsor stated that it was too early to say, but if it performs correctly, she can take on more advanced tasks. However, the value is that Aida, as an AI, is implemented in the organization and that there is considerable development potential (Assistant service manager). The organization lays the foundation for where they want to position themselves to make investments in AI in the future. The
significant change lies in the approach and the employees’ use of Aida in the way of support in carrying out some of their tasks. It is about streamlining for the employees to make time for more value-creating tasks. Change leader expressed how she could now be freer and be more independent in the use of Aida.

“I can use Aida when I want, and it does not matter if it is in the middle of the night, I can get help when it suits me. The service desk has their opening hours while this saves time for me.” (Change leader)

Aida also helps IT service desk to reduce their workload in the sense that the employees on service desk can do other more complex tasks instead (Project manager & Operative sponsor). A human employee cannot store all the information about processes and asked questions, but Aida has that ability (Project manager). Change leader explained she uses Aida several times a month and mostly through the webpage where Aida is placed. Change leader used Aida when she forgot her password and needed to unlock her account. Another change is the new interaction channel, from calling to chat.

“There is some behavioral change that has occurred, that people tend to chat more now.” (Project manager)

Earlier implemented systems have been introduced as a tool but, from some of the respondents’ point of view, it was essential to introduce Aida as a new digital employee. The purpose was for Aida to be considered as a co-worker and not as a technological system or tool; in this case, the exchange between user and Aida was of importance (Sub project manager, Project manager & Operative sponsor). However, the respondents had different views on the concept of Aida as a digital employee. Change leader, explained that it was too soon to call it an employee because Aida still needs more training and has too little AI functions. But Change leader also expressed she likes the approach of calling her that. One of the respondents (Assistant service manager) expressed a danger in comparing Aida with a human because it is a system and the human-human interaction is missing. Sub project manager argued that the technology is dialogue-based, conversational driven, which means a more in-depth dialogue and Project manager defined the technology as a cognitive agent with artificial characteristics.

4.5. Challenges
Their current system infrastructure is built over an extended period, which caused challenges when implementing newer solutions. It is different from start-ups who are making an infrastructure today. They can construct anything from scratch, which will be “clean and tidy.” While SEB has many systems that must be able to integrate with a new one. (Operative sponsor)

When users chat with Aida different presumptions occur depending on the user. Project manager described how he perceived variation between expectations from managers and
employees, as described in expectations (see 4.1.1). Managing these expectations was a challenge for the project group and still is (Project manager). Change leader explained that this was met with, e.g., articles on the intranet and information offered by different departments. Another communication challenge the project group had was how they could communicate that Aida was not a new IT tool but rather making the departments take ownership of Aida and see the potential of her. Aida would not succeed with the reciprocation if the department did not receive ownership (Operative sponsor).

Respondents expressed challenges in their use of Aida. Many users give up after receiving an inappropriate response from Aida or if she asks them to seek help elsewhere because she cannot yet answer the question in hand. Assistant service manager could spend several minutes conversing with Aida and ultimately not get the help he asked for. The technology needs to be trained by the users and, as Sub project manager explained, Aida only has a few tries to help them before they are out of patience. Furthermore, Change leader explained a challenge in how they need to refine Aida to speed up the work. Change leader takes up one example when Aida does not remember some control questions and how it would be preferable if she could remember that the user was logged in before, that would reduce irritation. Regarding of what Aida has contributed to, Assistant service manager stated that she has not yet contributed to the effectiveness. He proceeded to say that they were adopting her to talk and suitably understand the user’s intentions. She is still in a learning process and can handle 80-90% of the processes at, e.g., IT service desk (Project manager). There are still areas where Aida needs to be improved, e.g., converse in Nordic languages, and there were high demands on the product to say that she was performing at her best, said Operative sponsor. Nordic languages are more complicated because of how a sentence may have several meanings. Project manager explained how they are working on four new business cases in the organization where Aida will be employed.

4.6. Future
Many of the respondents expressed future expectations and desires of what Aida should be able to do. Three of them (Sub project manager, Project manager & Operative sponsor) expressed several areas within the organization where Aida may employ within a few years. However, they were reticent about these areas, but they are working with it (Sub project manager & Project manager). The functionalities of Aida, can today be applied to whatever support business there are, if there is a need, said Project manager. Assistant service manager responded he would like to use Aida to ask for more HR related question instead of searching on the intranet. The organization’s vision of Aida is to be an internal assistant for the employees. Where employees can ask for anything, e.g., salary or IT. Moreover, the internal assistant should have more AI types of functions like, e.g., book meetings, scheduling issues, information retrieval from intranet and other everyday problems (Operative sponsor, Assistant service manager & Change leader). She would be an assistant for all the employees and Operative sponsor stresses that the technology can do this, but a challenge is that the organization has to prioritize the development effort.
Project manager wanted Aida to be more proactive and help employees to remember certain things by initiate a dialog. Operative sponsor gave examples of tasks that Aida potentially can do in the future, e.g., do vacation and time reporting, or help their compliance department. The issue of what Aida can do in the future is not about what an AI can solve instead see to what SEB need and then find the correct solution (Sub project manager & Assistant service manager). Assistant service manager expressed that the functionality the organization wants to have to be a product of their needs.
5. ANALYSIS

This chapter incorporates the analysis of the main concepts identified. The analysis is considering differences and similarities between theory and empirical data. By using the analytical framework presented in 3.7, the purpose is to analyze how the CB, Aida, was implemented internally in SEB.

5.1. Adoption

The path of introducing new technology starts when trends and opportunities are spotted in the organizational environment (Bouwman et al., 2005; see figure 8). Within the last decade, AI has been an opportunity that many companies invest in (Dahiya, 2017). In the fall of 2015, SEB started their adoption of new technology when a project group was put together with the mission to seek insight about implementing an AI-driven CB. As Wong and Ladkin (2008) explained, for product innovation to be successful, the team’s efforts, behavior, and creativity are crucial. The project team of SEB consisted of employees with different backgrounds, who had the curiosity and interest in the technology and innovation; which helped the team to be creative, pioneering and motivated. The organization's vision of becoming more digitized was the organizational driver for this project.

Bouwman et al. (2005) described how a company needs to have a vision when their process of implementing a new technology starts, and Tushman and O’Reilly (2002) gave examples such as competitive advantages and economic growth. By implementing an AI-driven CB, SEB position the organization as a digital company that attracts attention both from media and new labor and the ability to make future investments in AI. A more explicit goal with the CB was to support initial support functions in the organization, reduce human errors, speed up the processes and reduce costs. The Aida project was a collaboration with a software development company and the underlying technology of the AI-driven CB was in its infancy, which meant that the collaboration started from scratch. Since there is no manual or documentation for this kind of new technology the project team had to have a close partnership with the development company. Initially, the project group worked on different cases where a CB could be implemented in the organization (see figure 8). An organization
needs, in the initial phase of a traditional IT project, to establish internal strategy formation, project definition and activities related to the technology (Bouwman et al., 2005). However, Aida was not seen as a traditional project, from the organization’s point of view, with, e.g., deadlines and project plans, but rather as a research project. The team had to look at what value the technology could bring to the organization, and a pilot project initiated where 700 employees tested the technology. The pilot was successful and proliferated. Lucas and Goh (2009) pointed to the difficulty of implementing an ICT system in an organization, which has had many previous implementations of IT systems. The researchers compared a start-up company, which can incorporate new technologies into their IT infrastructure, to a traditional older company that has to take the existing infrastructure into account. SEB’s current system infrastructure has been built over a long period, which has caused challenges when implementing newer solutions; this is an aspect that SEB had to take into consideration when implementing Aida in the first case.

Using different activities to introduce the technology is, according to Bouwman et al. (2005), necessary in the adoption phase with the aim of determining its use in the organization. To start the CB journey one of the first activities, when introducing the new technology to the organization, was to let the employees name the CB. A contest took place where the employees could submit name suggestions, and the winning contribution was a playful combination with AI and Aid - Aida. The purpose was to introduce the technology as a new employee and, Bouwman et al. (2005) explained that it is important when introducing new technology to the organization to counteract resistance and familiarize users in a meaningful way. Even though Aida is performing tasks previously done manually, the function of Aida is to be a support to the employees; the intention is not to replace any of the employees. That is an essential notion because, as Chakrabarti and Luger (2015) described, AI driven CB can take over employee’s tasks and make them unemployed. So, it was urged that Aida is a support function and therefore introduced to the organization as a trainee and digital employee, not as a replacement of employees. Previously implemented systems have only added as an IT system tool, but it was important to present Aida as a new digital employee.

CB is used to free resources (Dahiya, 2017), make processes more effective (Kane, 2016) or increase availability (Shah et al., 2017) by taking over functions those us humans otherwise would do. In many cases, CBs are used as a service solution to answer questions about products, support, and initiative of a company (Chakrabarti & Luger, 2015; Dahiya, 2017). The first case where Aida was employed was as a service solution internally at IT service desk; here employees can chat with Aida to get help with different support questions. The purpose, from the organization’s perspective, was to reduce costs and reduce the workload and enable employees to perform more value-creating tasks.

When organizations invest in new technology, it might be a well-considered decision, but in the end, the crucial variable is the extent to which members of the organization use the technology (Bouwman et al., 2005). Expectations in the organization, communicated to the project team, was that it would be hard to educate Aida, that there would be resistance from
employees and that managers would think that the AI-driven CB would solve all problems. By showing demos, have lectures and visiting different departments the project team could meet this expectation and get the employees to use Aida. Bamford and Forrester (2003) explain that when implementing new technology, it is an ongoing process of change. In the beginning, the project team had little or no expectations of what Aida could do, but now they have different cases where they plan on implementing her.

5.2. Implementation

![Modified framework - Implementation phase.](image)

Around 70% of projects have been observed to fail or be cancelled (Balogun & Hope Hailey, 2004) and consequently, it is important to evaluate every step in the process and understand that it does not occur in a planned way (Orlikowski & Hofman, 1997). The implementation process has different critical parts; among them are the organization's existing methods, and the user (Bouwman et al., 2005). Another crucial factor in the implementation phase is management support (Elrod & Tippett, 2002) and role models that can demonstrate changes (Cooper & Zmud 1990; Damanpour & Schneider, 2006). The Project manager expressed that they always had top management support and super users when implementing Aida. During the implementation and introduction of Aida, there was no education for the users; this was due to the characteristics of the technology (figure 9).

The conversation with a CB is taking place in text-form through inputs from humans and outputs in the form of the CB (Shawar & Atwell, 2007; Dole et al., 2015) by using a medium like NLP (Singh & Shree, 2017). Aida was implemented in the organization as a ‘twenty-four-seven’ IT service desk trainee in a chat function on the intranet. Aida understands the dialogue and user’s underlying intention, and that is what NLP empowers. Singh and Shree (2017) explain when using NLP, syntax, semantic and pragmatic are important aspects and a conversation with a CB is simple (Pannu, 2015; Dahiya, 2017). NLP enables Aida to understand what the user wants to accomplish, the context where the user exists and interprets it correctly. Initially, several employees at IT service desk trained Aida with their knowledge in the area; when she started the trainee period, it was like employing a three-year-old comparable to a human in expertise. The difference was that Aida could learn more and faster; it did not take several years, only a few. That is, according to Hill et al. (2015), the intelligence of an AI-driven CB, the ability to understand and solve user’s problems and at the
same time learns. Because Aida is a CB driven by AI, the underlying technology of her makes it a constant learning process. That is, as Rahman et al. (2017) describe, the advantage of being the first to implement the technology even though it today, only executes basic tasks.

When Aida was implemented in the organization, new expectations arose. Employees expressed the expectation that Aida would know more than she did and solve more problems. One respondent revealed that it is important not to believe that an AI will address all the issues that exist in the organization. Hence, even though a CB is intelligent the limitation of what it can do is in the data with which it trained, and constraints for a bot are thus, in its ability to develop discussion with the users beyond the historical data it has learned. (Hill et al., 2015). Other expectations that emerged were that a robot would treat the user and that AI could replace as much as possible. Due to this, managers feared that resistance would occur, and employees would prefer to chat with a human. This type of expectations is not uncommon, and as Dale (2016) explained, digital employees have the potential of replacing human employees with the help of AI technology. The project group meets these expectations by communicating the organization’s vision of having Aida as digital service support.

5.3. Use

![Figure 10. Modified framework- Use phase.](image)

Use is about the individual's use, in this case, of Aida (figure 10). After Aida was implemented in the organization, the use of her made it possible to examine if a fit might exist in the task that the technology intends to solve. Shawar and Atwell (2007) described that different names define CBs, SEB referred to their CB as a digital employee. The reason was that they wanted to anchor Aida in ownership and that the employees would not view her as a tool. There were objections from some of the respondents that she is called Aida and that they should see her as the system she is and not as a human.

The users were not given training on how to use Aida. The information they received was that the only thing required is to initiate a dialogue with a desire to get help from her. It was expressed that it is easy to use Aida as she fronts on the desktop of their computers and the intranet. The availability and how quickly users can get answers from the system is something that D’Ambra and Wilson (2004) argue affect the perception of the technology. Respondents expressed that Aida, to some extent, responded quickly to their questions.
Aida converses with users in a text-based form where employees write their questions in a chat. NLP technology is what enables CBs to perform specific tasks (Singh & Shree, 2017). Aida can perform particular tasks, but she is continually evolving and is, taught like her colleagues, depending on what she is going to help. Aida requires lots of training data that continuously needs to be entered for her to evolve. It takes millions of questions and answers before CBs can operate without human involvement (Singh & Shree, 2017). That has, in turn, led to a dilemma regarding the use of her. One respondent stated that Aida has only a few attempts to help the user before he loses his patience. In other words, if Aida cannot answer the question correctly enough, the user loses patience. Hill et al. (2015) argued that the obstacles for CBs are to understand the meaning of words, and this is something that the respondents confirmed in their answers. Sometimes Aida does not understand the user's intention and answers wrongly or reiterates the same questions. It is about understanding languages as well as the users’ intention. English worked well but developing Aida to converse in Nordic languages is more of a challenge. It appeared that the organization is working to adopt her to be able to converse and understand the users in a better way, which is a continuous process. This process is vital because a technology is more likely to be used if it is compatible with user requirements (Pagani, 2006). It is not about if the technology is advanced, but if the technology can perform the tasks satisfactorily (Zhou et al., 2010).

At present Aida has taken over supporting tasks where employees can, among other things, chat with her to unlock their accounts instead of calling IT service desk. Bouwman et al. (2005) believe that technologies can help users to work smarter. With the introduction of Aida, individuals at SEB have had more free time to create value-creating work. Respondents stated that Aida is useful and above all, that she is good at the tasks she is currently managing. However, Aida does not now contribute to more efficiency beyond the time they save by avoiding phone queue. Moreover, Aida helps employees with reminders of using their vacation days, this allow employees to focus on other tasks that create more value for the organization.

Bouwman et al. (2005) argues that the decision of whether a technology is successful or not is whether users use it. Aida is used in the organization several times a month, and she is primarily used to unlock accounts and answers simple IT and HR questions. If Aida is successful or not is difficult to express. Even though she helps to solve more straightforward tasks, it is too early to say if she could contribute more soon. If success is measured of the definition by Bouwman et al. (2005), Aida is successful. Respondents expressed that she learned quickly and exceptionally well in carrying out the tasks imposed on her, which was an important factor as other significantly cheaper products can solve these simple tasks. However, Aida is in an early stage and therefore it is hard to predict what they can use her for, but she has potential to work with more complex tasks in the future.
5.4. TTF

The TTF model divides into different components, which individually examine whether there is a match between technology and the task to be solved. The technology is the tool that users use to perform a task (Dahghan et al., 2014; Tripathi & Jiggeesh, 2015; El Said, 2015). At SEB, Aida is the tool employees use to perform tasks like: unlocking their accounts, or answer HR-related questions. Aida is still in a learning phase (figure 11). Respondents expressed positivism to their use of Aida and that she fulfills her purpose. Another problem regarding Aida that may also occur is if a system does not match the user's criteria (Aral & Weill, 2007), is that Aida does not remember the control questions she poses. Aida uses these control questions to ensure that she interprets the request correctly. According to the TTF-model, the user will use the technology if there is a fit between the user's tasks and if it contributes to efficiency (Tripathi & Jigeesh, 2015; Wu & Chen, 2017). Some respondents expressed that they did not use her that often as she poses too many control questions and that she still cannot do enough. TTF is low because Aida does not solve the task as the user wishes. On the other hand, regarding unlock accounts there is a high fit between technology and the task. Employees can devote their saved time to more value creating tasks since Aida has taken over this task, which was previously performed manually at IT service desk. Depending on what function Aida handles, there is a higher or lower fit between that task and the way Aida can perform the task.

5.5. Effects

The TTF model divides into different components, which individually examine whether there is a match between technology and the task to be solved. The technology is the tool that users use to perform a task (Dahghan et al., 2014; Tripathi & Jiggeesh, 2015; El Said, 2015). At SEB, Aida is the tool employees use to perform tasks like: unlocking their accounts, or answer HR-related questions. Aida is still in a learning phase (figure 11). Respondents expressed positivism to their use of Aida and that she fulfills her purpose. Another problem regarding Aida that may also occur is if a system does not match the user's criteria (Aral & Weill, 2007), is that Aida does not remember the control questions she poses. Aida uses these control questions to ensure that she interprets the request correctly. According to the TTF-model, the user will use the technology if there is a fit between the user's tasks and if it contributes to efficiency (Tripathi & Jigeesh, 2015; Wu & Chen, 2017). Some respondents expressed that they did not use her that often as she poses too many control questions and that she still cannot do enough. TTF is low because Aida does not solve the task as the user wishes. On the other hand, regarding unlock accounts there is a high fit between technology and the task. Employees can devote their saved time to more value creating tasks since Aida has taken over this task, which was previously performed manually at IT service desk. Depending on what function Aida handles, there is a higher or lower fit between that task and the way Aida can perform the task.

Figure 11. Modified framework- TTF phase.

Figure 12. Modified framework- Effects phase.
After the implementation and use of the CB for a time, respondents could comment on the effects of it (figure 12). The effects of the CB affect individuals, organization, and the environment. As SEB implemented an AI in its organization, a media interest grew around the company. That has, in turn, contributed to benefits such as labor attraction and its positioning regarding AI technology. It appeared that the view of Aida, in the organization, has changed over the period since the beginning of 2015. They expressed that they should try to change the view of her; that employees should see her as an internal assistant instead of only a colleague. In her role as an internal assistant she should be able to answer any questions that may appear from the users. It expressed that the potential is there, but that the organization must prioritize this development effort for it to happen.

Aida has not changed the organization particularly much. It was too early to say that she has changed the organization to a great extent since she is still performing simple tasks. On the other hand, some expressed that she has changed behaviors in the organization. As Loebbecke and Picot (2015) stated: IT, introductions change organizational structures and contribute to new business models. That may not be true with the case at SEB because they have not changed their structures except employees behavior in how they perform specific tasks. From earlier calling, they are now chatting to solve the task.

Respondents expressed how Aida should be able to streamline. From sitting in telephone queues to solve a relatively basic task, Aida has contributed to time-savings, which has led to employees being able to perform more value-creating tasks. The task accomplished faster than it was when employees completed these tasks at IT service desk. Although Aida solves simple tasks today, all respondents saw potential in her, and thus a higher value in implementing her than you cannot see the effects of today. That is confirmed because several respondents expressed different uses for where they want to introduce Aida. The impact of adding a CB technology can change organizations, but in this case, the organization has not changed. Depending on where and what type of function in the organization, you are facing a CB, the outcome and effects will be after that.

Some discrepancies arose concerning Aida's contribution to efficiency. Bouwman et al. (2005) argued that technologies improve efficiency or add empowerment to employees, but at the same time it can lead to feelings of insecurity and dissatisfaction. It was expressed that Aida has contributed to more efficiency when solving certain tasks, previously performed by humans. Another respondent meant that she did not contribute to efficiency. Regarding of how much Aida affected efficiency depends on how often someone forgets his or her password and need to contact Aida for assistance. If a person is forgetful and has trouble remembering their login, Aida is a great help to streamline for that person. However, someone else who does not need help with login and thus does not use Aida does not find her meaningful. This, in turn, has led Aida to contribute to the effectiveness of the people in the organization who tend to use the function she acts. The people who do not use her to the same extent, on the other hand, do not see the efficiency others mean she contributes with.
Dale (2016) believed that technologies, like Aida, have the potential to replace employees with the help of AI. As Aida performs tasks at the IT service desk previously performed by people, she has in some way replaced people. However, it did not appear if employees had to go as a result of Aida. One of the tasks, to unlock locked accounts, has helped save time for employees, sometimes up to 5-6 minutes each time. The time they save gives them more time for value-creating work. Aida has taken over tasks that need to be done that are more repetitive and less evolving. On the one hand, she contributes to efficiency as Bouwman et al. (2005) said that technologies could contribute. On the other, she does not create efficiency for those who do not use her.

At the IT service desk, the potential has led to Aida having more information stored than a human being. The difference between how information is stored and efficiently reused by Aida is something that the respondents think is value-creating. The technology only gets better, the more data it receives (Singh & Shree, 2017; Rahman et al., 2017). Similarly, Aida can also quickly retrieve information when she receives questions that may only be asked a few times a year. A person, on the other hand, remembers the most frequently asked questions, and in this case, Aida is more functional. People easily make mistakes while AI has the potential to handle large amounts of data and thus base decisions on facts. People should focus on performing creative and innovative work, something that respondents agree to because they can save time for value-creating work. Radziwill and Benton (2017) believed that CB could contribute to increased satisfaction and dedication. Respondents expressed that the time they saved instead of sitting in the phone queue to IT service desk have contributed with benefits they did not see before.

The effects of Aida for individuals are that they have a new colleague, a digital employee. Some expressed the importance of calling her a digital employee, while others stressed the importance of that she is a system and does not resemble a human. The respondent expressed a fear of comparing Aida with a human since no human-human exchange takes place. As Grudin (2017) believe that employees should work with AI and not as competitors, the similarity of Aida can be a comparison to make employees not compete against her and instead be open to using her.
6. DISCUSSION & CONCLUSION

This chapter summarizes the conclusions of the study along with a discussion of what those conclusions indicate regarding CBs in organizations. That follows by a presentation of the research questions along with limitations and future research.

AI is a megatrend that many companies have adopted, and the potential of AI is enormous. SEB spotted the trend, and the project group took the mission of seeking insight into how the organization could benefit from it. AI is a trend that comes from the business environment; when the project team collaborated with a software developer the product that SEB decided on was the AI-driven CB Aida. An organization needs, in a traditional IT project’s initial phase, to establish internal strategy formation, project definition and activities related to the technology (Bouwman et al., 2005). However, the Operative sponsor explained that Aida was not a regular IT project and expressed that it was seen more like a research project, which meant that there was no precise definition or plan of the project. Because the AI technology is unexplored in this context and no manual for how to develop and implement it exists, there may be an advantage to not having a too strict project framework.

To the organization, Aida was introduced as a digital employee, and it was an important aspect when shaping the attitude towards the new system. The adoption of the system from the organization has been successful according to the Project manager because the employees are using her, and she can execute specific tasks required by the users. The majority of the respondents view Aida as a digital employee that can support tasks in various departments. Bouwman et al. (2005) point to the importance of reducing resistance and familiarize the user with the system. Since there is a perception that AI can make people unemployed by taking their jobs (Dale, 2016), it had been communicated that Aida was a support function and a co-worker. Grudin (2017) expresses that tasks performed by an employee are best executed together with an AI.

CBs require a tremendous amount of training to be able to act without human involvement (Singh & Shree, 2017). CBs continually learn and become improved out of the users' use of it. When not used, it is limited to the data it has received earlier (Rahman et al., 2017). It is beneficial if the CB is used to develop a broader intelligence about the user's questions. Still, people are different, and sentences have underlying meanings. Respondents had expectations that Aida could answer every question and understand the user's intentions with the help of NLP. Not understanding the meaning of words is something that is an obstacle for CBs (Hill et al., 2015). When Aida answered incorrectly or did not satisfy the user's needs, it caused them to decide not to use her to the extent that the organization requested. The organization wanted Aida to be used, in order to be trained and accordingly, developed and respond more satisfactorily to the users. Users lost patience when Aida did not answer favorably, and a catch 22 occurs. Aida is reliant on the employee’s use of her to be improved; nevertheless, the users do not want to use her since she cannot help them sufficiently. The organization could
have had an education with the users to realize the prominence of continually using her and not lose their patience after receiving an incorrect answer. Since the CBs do not develop without users using her, it is vital to express this importance.

The project team assumed that the underlying product of Aida would be more finished when they received it. That was evident because Aida did not have as much intelligence as they first assumed. The organization thought that their CB would be able to solve tasks immediately. But the reality indicated that Aida was not ready to address tasks at the start. She prerequisite a lot of training and the process to have her executing tasks were longer than expected. Even though AI has a rumor to streamline organizations (Kerly, Hall, & Bull, 2007; Nilsson, 2014), it is still little discussions of the amount of time it takes for a CB to work autonomously. Although Aida is executing simple tasks, it is interesting to speculate where she can be useful. Task-technology fit model facilitated to investigate if it was a fit between the task and the technology (Tripati & Jigeesh, 2015; Wu & Chen, 2017). Aida’s role at IT service desk had a fit with its tasks since it filled its function. The respondents expressed a value when Aida saves time for them, which they could use to value creating tasks. This modest task of chatting with Aida instead of calling IT service desk has added time, and that is a significant accomplishment. However, if Aida, for instance, could be the internal assistant, handle user’s schedules and book meetings instead of employees trying to do it, she could create even more time for valuable tasks. How much time she would contribute to would be another speculation. SEB has begun its journey within AI, which makes them a step ahead of their competitors.

What, and if, are the challenges with a chatbot, internally, in a bank?

A major challenge is that there is a high risk of catch 22 when an organization implements a CB. The CB requires enormous amounts of training (Singh & Shree, 2017; Rahman et al., 2017) and it needs to be used continuously to remain developed (Hill et al., 2015). The use of Aida was not satisfactory since she could not answer appropriately. If the organization does not emphasize the importance for employees’ to constantly use the CB, a catch 22 will likely occur, which means that the CB loses its function. For preventing a catch 22; the organization should focus on adjusting and modify the CBs processes to meet the needs of the people who use it (Bouwman et al., 2005; van den Hoof et al., 2005). An organization that invests in a CB should communicate its benefits; improving effectiveness or adding empowerment (Bouwman et al., 2005) to their employees. The user needs to understand their role in developing the CB and that this is crucial for it to become better. The organization should also communicate the importance of this vast amount of data the CB requires to work independently. The CB will never learn how to respond to a user if it has not learned from the previous use of it. CB have obstacles to understand the meaning of words (Hill et al., 2015) therefore it is important that different users use the CB for it to develop a significant understanding in different areas of the organization.
What expectations are there of a chatbot from an organisational perspective?
Initially, SEB had expectations that Aida would be somewhat like “magic in a box,” but that reality was far away. Expectations from the project group were that Aida should be able to handle all sorts of tasks at the start. These were incorrect since she started like a three-year-old and needed lots of training in order to function. As mentioned earlier a CB needs a lot of training data (Dahiya, 2017; Singh & Shree, 2017; Rahman et al., 2017); this was something that SEB was not prepared for. Even though expectations were that she would be able to do a lot of general tasks she is currently executing tasks that the organization has taught her, as a regular employee needs to be trained when employed. It is not strange to have the presumptions of “magic in a box” since AI and CB are buzzwords and are expected to execute millions of jobs, today performed by humans (Loebbecke & Picot, 2015; Pannu, 2016).

How does a bank use a chatbot for internal use?
Aida is, at the moment, performing simple and straightforward supporting tasks but as all the respondents expressed; the potential of the technology is major. Aida is executing tasks in minor areas. Research on CB finds that organizations can benefit from CB with releasing resources (Dahiya, 2017), more effective processes (Kane, 2016), and increase accessibility (Shah et al., 2017). Aida has contributed with releasing resources from IT service desk, with task earlier performed with their “left hand,” She has created more effective processes since employees do not need to wait in a queue in order to unlock their computer accounts. For most she has increased the accessibility since she is working around the clock and can support every employee at the same time. Aida is a co-worker and has not been employed to reduce SEB’s workforce. Her capabilities are limited; however, the supporting tasks she can execute give the users’ time to do more value-creating or complex tasks.

6.1. Contribution
This study is among the first, as far as the writers’ understanding, at examining CBs implementation internally in a banking environment. The research has contributed to the theory and the empirical gaps that were presented in the problem statement (see 1.2).

6.1.1. Theoretical contributions
• This study has built on the Task-technology fit model. Previously, it has been used primarily in quantitative surveys, but it has been well suited in this qualitative survey. TTF-model is appropriate in qualitative research because it helps meet the need for studying user’s tasks and the new technology used to assist in those tasks. It has been used to identify technology characteristics and task characteristics and if there is a fit between them.

• The results from this thesis contributed to implementation theory when identifying a new continuous process that occurs in the IT implementation framework. The framework (figure 2) has been used when studying the different level of analysis when implementing a new technology. Because the original framework (Figure 2: Different levels of analysis, Bouwman et al., 2005, p. 31) is examining traditional IT systems, it
was preferable to be combined with the TTF-model (Goodhue & Thompson, 1995, p. 215) to identify the tasks, and study the new CB phenomenon. In other research, technology has been studied in a process with a final goal; where the technology is implemented and used as a regular tool. That is the underlying reason why the framework (see figure 13) would need to be developed further. Compared to a system that is complete, like Microsoft Word, Aida is continuously learning new tasks and depending on the data fed to her, the capabilities continually progress. Development of the model had to be made to study Aida. The potential of what an AI-driven CB can do is also a contributing factor for the development of the model. It is an agile process between implementing Aida to new departments, using the system and examining the fit between Aida and the tasks that are desired to perform and effects of it (see figure 13). The contribution is, therefore, an extension of the model in a continuous process between implementation, use, and effects where there is no final goal since the CB is continually developing and improving.

![Figure 13. Developed framework of the process of implementing a CB. Made by the authors and inspired by Goodhue & Thompson (1995) and Bouwman et al. (2005).](image)

6.1.2. Empirical contributions

- This study has contributed to the empirical evidence with an understanding of the importance of employees accepting that the CB requires a lot of training. It needs to be used even though it cannot perform arbitrarily. Training the CB is vital for it to evolve and the project group has to communicate this when implementing it. A common perception about CB is that it will replace employees, however; this study has contributed to a different awareness and the importance of viewing the CB as a supportive technology.

- The results suggest that even though Aida only can perform simple tasks, she can save time for employees who use her. This time can be spent on more value-creating or complex tasks. Organizations’ should invest in AI-driven CB, even though it is in its infancy, it can provide with benefits for both the organization and the user.

- On the other hand, what CBs will be able to do, say in 5-10 years, no one knows. Just like the cellular phone was a simple technology when introduced, today, several years
later smartphones are sophisticated and has a significant role in many people's lives. Similarly, CBs can be developed and perform more complex tasks and companies today needs to investigate the opportunities and embark the technology.

6.2. Limitations & Future research
Limitations of this thesis are, primarily, the sample size, which makes it necessary to conduct in-depth surveys for confirmation of the findings. There may be other variables that have to be examined when evaluating CB in an organization. The case study design also limited the results to one context and future research should use the TTF-model when identifying tasks that a CB can support in other organizations and settings.

This thesis has studied CB in an organization where it was recently implemented. Because of the explorative approach in this thesis, future research should do longitudinal studies to identify long-term effects. Tasks that the CB can execute have been defined; however, the development nature of CB makes it continually evolving, and new tasks can be identified and evaluated. With the variable and models used in this study, repeated observations could further the analysis of the CB technology.

Furthermore, future research could do a quantitative study with the TTF-model on CB. The model primarily has been used in quantitative settings, and it would be preferable to do a similar study like this one to get more generalizable results. Limitation of this thesis is also that it has only examined at the implementation, and future research could study security, ethical dilemmas, and responsibility. The role of AI in organizations is unknown. Ethical difficulties need to be addressed as, e.g., what happens if a CB denies a loan to a qualified prospective homebuyer. Is it the bank, or is it the CB? It would be of interest in future research to explore these kinds of dilemmas that organizations are facing when using the technology.
7. REFERENCES


Chatbot - magic in a box?


Appendix 1.

Interview Guide

Demographic data:
Gender:
Education:
Role in organization:

1. Can you describe the chatbot that you are using today?
2. Which expectations did you have on the chatbot, before the implementation?
3. How is the organization using the chatbot?
4. How do you use the chatbot to support your tasks?
5. How often do you use the chatbot?
6. What expectations did you have on the use of the chatbot, from the employees' usage?
7. How would you describe the tasks that the chatbot should perform?
8. How quickly do you receive answers from the chatbot and in what way is it helping you to solve the task?
9. How were these tasks performed before the chatbot?
10. Are there other tasks you would like the chatbot to help out with, that it does not do today?
11. What kind of help do the employees get from the chatbot?
12. What areas do you think the chatbot can apply to in your organization?
13. What knowledge did you have about the technology before the project?
14. How has the chatbot transformed your organization?
15. How much education did you get in using the chatbot?
16. Was there any education for the employees?
17. What challenges have you faced using the chatbot?
18. How are you interpreting the chatbot?