AI-Enhanced Marketing Management
Factors Influencing Adoption in SMEs
Bachelor Thesis in Business Administration

Title: AI-Enhanced Marketing Management – Factors Influencing Adoption in SMEs

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Abstract

Recent developments and hype around artificial intelligence (AI) have arisen as result of two main factors: increase in computational power and data. Although marketing is considered as one of the main business applications within AI today, there is a lack of literature combining the disciplines. Marketing management tools, which utilise AI in supporting decision making are referred to as knowledge-driven marketing management support systems (MMSS). These systems provide besides quantitative analysis, further qualitative facets into marketing management. Despite the willingness of many SMEs to engage with the technology that may foster competitive advantage, many adoption processes fail. The purpose of this thesis is to explore the factors influencing adoption of knowledge-driven MMSS in SMEs in Finland and Sweden.

Qualitative primary data was collected from nine company representatives at top management level in Finnish and Swedish firms. Companies were classified in three categories, providers, adopters and non-adopters of knowledge-driven MMSS.

The findings show that there are several factors influencing adoption of knowledge-driven MMSS. The factors were grouped into technological, organizational and environmental factors, based on the TOE framework. Even though SMEs suffer from a lack of resources compared to large companies, this research suggests that they are at the forefront of adopting AI for marketing purposes. Additionally, it was found that the factors affecting adoption are dependent on whether the knowledge-driven MMSS is built in-house or outsourced.

This study has contributed to the identified gaps in literature by combining the disciplines of AI, marketing and SMEs, and by exploring the factors behind adoption of knowledge-driven MMSS. The authors of this thesis have the aspiration that the developed post-empirical framework will serve as a guiding tool for top management and marketing managers in SMEs looking to adopt knowledge-driven MMSS into their organizations.
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Sebastian Berg                               Tommi Savola                                    Tyko Tuohimaa
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1. Background

In the modern age, Artificial Intelligence (AI) represents a new frontier in technological advancements, allowing businesses to push boundaries and achieve goals that have not been possible before (Corea, 2017). The progress that has been made in understanding and making use of the technology and its potential, represents a paradigm shift in industry evolution (Corea, 2017). The intense level of knowledge required to truly understand the technicality of AI has led to misconceptions of what the technology is and what it can do for a business (Corea, 2017). A large portion of the business world is aware of the term ‘artificial intelligence’ but have trouble understanding the fact that AI will not derogate human jobs, rather it will enhance certain processes (Bostrom & Yudkowsky, 2018). The specific definition of AI has not been universally agreed on and accepted (Parnas, 2017), but for instance Corea (2017, p. 2) defines AI as “a system that can learn how to learn, or in other words a series of instructions that allows computers to write their own algorithms without being explicitly programmed for”. Along with the manifold variety of applications for AI, comes the potential influence of such systems in the world we live in. According to Rao and Verweij (2017), its effect on society as a whole is expected to be substantial as it is predicted that global GDP could be up to 14% higher in 2030 as a result of AI – equivalent to an additional $15.7 trillion.

The term artificial intelligence has been around since the 1950’s, and as a research domain, AI is widely interdisciplinary (Corea, 2017). The core of AI is built on multiple fields of study such as mathematics, linguistics, philosophy, economics and much more (Russell & Norvig, 2003; Tecuci, 2011). Since the acknowledgement of the technology, the orientations and expectations of what AI can do have changed drastically (Wierenga & van Bruggen, 2000). The current excitement around AI is as a result of two main factors. Firstly, computational power is increasing with exponential growth; the development of multi-core systems, which have allowed computers to conduct parallel processing, and see analytics in real-time (Guzella & Caminhas, 2009). Secondly, the available data is increasing with exponential growth (London, Breuer & Chui, 2017). Although AI has been around for 6 decades, it has only been applied to marketing in the last decade and is now more prevalent than before (Wierenga & van Bruggen, 2000).

AI principles and concepts have been investigated in solving marketing problems already since the second half of the 1980’s (Wierenga & van Bruggen, 2000) but the explicit use of AI in marketing has only started to emerge in the past years (Wierenga, 2010). As marketing is a mix of quantitative and qualitative characteristics, it creates a unique opportunity for AI to expand to areas where it is not enough with only econometrics (Wierenga, 2010). The main AI applications in marketing today are in terms of expert systems, neural networks and case-based reasoning, (Wierenga & van Bruggen, 2000; Wierenga, 2010), and at more practical levels, AI has been used to augment and improve the traditional marketing means (Hoanca & Forrest, 2015). Bughin, Hazan, Manyika and Woetzel (2017) specify that companies are able to create highly personalized marketing campaigns by analysing data with the help of AI, enhance yield management by introducing dynamic pricing and provide exceptional customer service.
Marketing management requires marketing decision makers to constantly solve problems and guide marketing mixes of 4Ps (Wierenga & van Bruggen, 2000). Knowledge-driven marketing management support systems (MMSS) enable marketing managers to leverage their decision making with analysis of data, information and knowledge using AI (Wierenga & van Bruggen, 2000). In brief, knowledge-driven MMSS is a tool providing decision support for marketing managers through analysis of data with the enhancement of AI (Wierenga & van Bruggen, 1997).

The bottlenecks in hindering companies from taking advantage of AI are considered to be in management and implementation (Brynjolfsson & McAfee, 2018). Small and medium-sized enterprises (SMEs) may experience these bottlenecks even more strained than larger firms, due to company characteristics and resource constraints (Qian, 2002). Typically, SMEs suffer from a shortage of managerial as well as financial resources compared to larger firms (Qian, 2002). Consequently, SMEs more often experience weak asset bases, low-risk propensity and a lack of formal planning (Bharati & Chaudhury, 2009; Levy, Powell & Yetton, 2001). As new technologies emerge, these shortcomings have an even more severe impact on SMEs and may explain why they often fall behind larger companies in the adoption curve (Afuah, 2003).

In Europe, an SME is defined as an independent firm with fewer than 250 employees, an annual turnover not exceeding 50 million euro, and/or an annual balance sheet in total not exceeding 43 million euro (European Commission, 2018c). According to European Commission (2018a), SMEs represent 99.8 percent of firms, 66.6 percent of jobs and 56.8 percent value added in the EU, which is on similar levels in Sweden and Finland. Although SMEs are of significant importance to the contribution of economic growth in Sweden and Finland, they encounter numerous challenges in staying competitive (Holmlund, Kock & Vanyushyn, 2007; Oksanen & Rilla, 2009; Svensson, 2017).

### 1.1 Problem Discussion

In the domains of technology management and information systems (IS), adoption of new technology has been an extensive field of research (Lai, 2017). Studies have aimed to understand, predict and explain different variables influencing the adoption behaviour, both at individual and organizational levels (Gangwar, Date & Raoot, 2014). These studies have led to the development of several conceptual models and frameworks to understand the relationship of these variables with the adoption behaviour of accepting and using technological innovations. These theories and frameworks have likewise been applied in the context of SMEs regarding technology acceptance (Iacovou, Benbasat, & Dexter, 1995) as well as the potential benefits and impact of such adoptions (Adam, 2015).

However, researchers are pointing out that SMEs characteristics have not been taken enough into consideration in advanced technology adoption and the viability of such adoptions (Bharati & Chaudhury, 2009; Adam, 2015). Bharati and Chaudhury (2009) suggest future research needs to reflect the characteristic conditions of SMEs, in that they characteristically suffer from weak asset
bases, low-risk propensity, lack of formal planning and cultural insularity. In short, small firms are not scaled-down versions of large firms (Tse & Soufani, 2003). In addition, viewing from the technology scope, where new technologies are evolving constantly and the means of adoption evolves with it, the need of understanding the dimensions and characteristics of both individual and organizational adoption is of immense relevancy (Hoti, 2015). This applies to SMEs in particular, where their smaller size and weaker asset base leaves them more vulnerable to external changes (Bharati & Chaudhury, 2009). The shortage of studies on SMEs’ adoption characteristics of new technologies and how well they fit in currently available frameworks, implies a gap in existing literature (Hoti, 2015). With this research, the authors of this thesis aim to compose an academic contribution to the implied gap.

Although marketing is one of the main business applications within AI today and early adopters are already creating value from it (Bughin et al. (2017), there is a lack of literature combining these disciplines (Wierenga, 2010). Wierenga (2010) also notes that the shortage applies for AI publications in marketing literature as well as marketing approaches in AI literature. In 2012, Scopus had less than 50 articles about marketing and AI/intelligent systems within business and management related journals (Martínez-López & Casillas, 2013). Since then, the research within the area in Scopus has nearly doubled but the total still amounts to under 100. Martínez-López and Casillas (2013) conclude that more interdisciplinary research between AI and marketing is required especially considering the absence of relevant research and the potential of this combination for marketing decision making.

In marketing management, the marketing environment should be the driving force behind marketing decision making (Gao, 2012). This means that the decision-making process should be based on the following factors, but not excluding others: target market characteristics, marketing environment, enterprise resources, marketing budget, and production resources (Baocheng & Yilin, 1995). The primary purpose of a marketing management support system (MMSS) is to provide marketing decision makers with sufficient knowledge to tackle these issues. The system was initially developed for individual purposes in marketing decision-making (Wierenga & van Bruggen, 2000). However, in the big picture, MMSS can have a profound effect on an organization as a whole by transforming the company into a market environment-driven organization (Wierenga & van Bruggen, 2000).

MMSS has already been technically validated since the late 1990s (Wierenga & Ophuis 1997) providing evidence that marketers can make better marketing decisions. During the same time period, Wierenga, van Bruggen and Staelin (1999) suggested the importance for organizations to start adopting the systems. Wierenga and Ophuis (1997) also found that adoption factors are of great importance for the success of MMSS and suggested future research to gain a deeper understanding of the factors. More recently, Bumblauskas, Gemmill, Igou and Anzengruber (2017) suggested further research on decision support systems with AI. This thesis explores the factors influencing knowledge-driven MMSS adoption in SMEs considering the contribution to the literature and importance of the topic discussed in this chapter.
1.2 Purpose and Research Question

The purpose of this thesis is to explore the factors influencing knowledge-driven marketing management support system (MMSS) adoption in SMEs in Finland and Sweden. This leads to the research question:

*What are the factors influencing adoption of knowledge-driven MMSS in SMEs?*

1.2.1 Intended Contribution

The intended contribution of this thesis is two-folded. Firstly, the aim is to make a theoretical contribution by fulfilling the identified gaps in the literature introduced in the Problem Discussion section above. Secondly, this research strives to provide insights for top management and marketing managers in SMEs planning to adopt AI into their marketing management. Additionally, the results of this thesis provide understanding about the adoption of AI into marketing management for SMEs that have already adopted these solutions.
2. Literature Review

2.1 Marketing Management

Kotler (2002) defines marketing management as the act of applying core marketing concepts to choose target markets and obtain, maintain, and stem customers through creating and delivering superior customer value. Alternatively, Webster (1992), as well as Wilkie and Moore (2003), define marketing management as a decision-making process involving pricing, promotion, distribution, and product planning and development. The decision-making process is an integral part of marketing management (Kotler, 2002). Kotler (2002) mentions that marketing managers face several decisions in the marketing process regarding target market, market segment, and product offering, which make the decision-making process arduous and stagnant. Drucker (1973) notes that the aim of marketing is to understand your customer to the point where the product can sell itself. For a marketer to understand the customer, the presence of data is of great importance (Wohlstetter, Datnow & Park, 2008).

Customer data has been around as long as companies have kept ledger books. However, along with the advancements in customer relationship management software, companies both large and small have the ability to store larger amounts of data (Khodakarami & Chan, 2014). The majority of firms gather data in varying amounts, however, not all succeed in interpreting the data (Garver & Williams, 2009). Marketers must use appropriate tools to their advantage, as data adds little value if it is not turned into useful marketing information for decision making (Kaplan & Norton, 1996; Conduit & Mavondo, 2001). Since the early 2010s, marketers have had access to more complex technologies, assisting in gathering and making sense of data on customers, ultimately making marketing strategies more effective, and aid marketers in the marketing decision-making process (Corea, 2017).

2.2 Marketing Management Support System (MMSS)

Advances in marketing technology have led to the increased use of tools for the support of marketing management, assisting in decision making (Wierenga & van Bruggen, 2000). These systems have been coined as Marketing Management Support Systems (MMSS), which in the early stages of development, Wierenga, van Bruggen and Staelin (1999, p. 1) defined as “any device combining information technology, analytical capabilities, marketing data, and marketing knowledge, made available to one or more marketing decision makers to improve the quality of marketing management”.

MMSS as a practice can be split into two branches; data-driven MMSS and knowledge-driven MMSS (Wierenga, van Bruggen & Althuizen, 2008). The main use of data-driven MMSS is to aid marketing decision makers with optimizing and reasoning their marketing processes, with the help of quantitative data analysis (Wierenga, van Bruggen & Staelin, 1999; Wierenga et al., 2008). With the exponential growth in data available to marketing managers, through for example the internet and smartphones, data-driven MMSS have become a prevalent force in marketing management.
Knowledge-Driven MMSS

Knowledge-driven MMSS utilize AI, making it applicable to marketing problem solving where the nature of decision making requires, besides quantitative analysis, much judgement and intuition embracing the importance of knowledge and experience of professionals (Wierenga, 2010). Wierenga (2010) suggests that knowledge-driven MMSS fill the need of more qualitative facets of the marketing decision-making process that aid in areas such as creativity, and situations where judgement and intuition are required. These systems have the ability to help marketers deeply understand the factors affecting different marketing phenomena, such as the success of new products and marketing campaigns (Wierenga et al., 2008). Contrary to data-driven MMSS, knowledge-driven MMSS use the marketing professional as the core component for solving marketing problems and use input data to build the system’s own intelligence (AI) (Wierenga & van Bruggen, 2000).

Wierenga et al. (2008) discuss the great potential of increased adoption of knowledge-driven MMSS. These systems allow for less biased activity when it comes to the decision-making process, as marketers faced with decisions tend to act as satisfiers rather than optimizers (Wierenga & van Bruggen, 2000). To clarify, as satisfiers, marketing managers make decisions where the majority of stakeholders will be pleased, whereas, for optimizers, managers make decisions based on what creates the optimal outcome (Sproles, 1983). The latest surge in artificial intelligence has made knowledge-driven MMSS a growing demand for marketers and providentially, the supply of such applicable technologies is plentiful (Lilien, Rangaswamy, van Bruggen & Wierenga, 2002).

2.2.1 Use Cases of Knowledge-Driven MMSS

There are three main categories of knowledge-driven MMSS based on the application of the system: expert systems, neural networks and predictive modelling, and thirdly case-based reasoning (Wierenga, 2010).

Expert Systems

Expert systems have been present in academia for many decades now, where they have been studied across all the main functional areas in an organization and they have been considered as one of the most successful areas within AI research (Wagner, 2017). Even though marketing has the least expert systems applications in research during the past 33 years, the impact of these applications in practice has been the highest within all the organizational functions (Wagner, 2017). Expert systems were defined as early as the start of the 1980s by various authors. Barr, Feigenbaum and Kaufman (1983) explain expert systems simply as computer systems designed to solve problems in certain areas. Ergo, expert systems are capable of acting as experts in a specific matter and applying problem-solving expertise to provide conclusions to the system user (Waterman & Hayes-Roth, 1982). Expert systems have been used in marketing mainly to enhance the marketing mix for example by defining suitable promotion means, specifying the right price levels for products and
finding the right timing for promotion campaigns (Wierenga, 2010). Wierenga (2010) also adds that expert systems can be utilized in marketing research as guidance for new product ideas.

**Neural Networks and Predictive Modelling**

There are numerous applications available for neural networks within marketing, predictive modelling being the most prominent (Paliwal & Kumar, 2009). Predictive modelling aims to identify patterns and relationships found in the historical data and exploit that information to identify opportunities and threats (Coker, 2014). By understanding relationships between the variables, marketers can make more educated decisions about the unforeseeable future (Swani & Tyagi, 2017). Predictive modelling is used especially in the area of customer relationship management (CRM). The customer data in CRM-systems can be utilized for predicting the customers most likely to churn and making them a priority for sales managers (Wierenga, 2010). Another example is predicting the response rates to a new product offering based on different segments (Wierenga, 2010) and modifying marketing communication accordingly.

**Case-Based Reasoning**

Case-based reasoning (CBR) has roots in analogical reasoning, where decision-making is based on previous experience in similar situations (Wierenga, 2010). Analytical reasoning is especially important in weakly structured areas, which do not have clear and quantifiable variables explaining the outcomes (Wierenga, 2010). As marketing can be difficult to conceptualize and analyse due to its very creative characteristics (Changchien & Lin, 2005), it can be categorized in the weakly structured area (Wierenga, 2010). CBR is a relatively old concept originated already in the early 1980s and Marling, Sqalli, Rissland, Munoz-Avila and Aha (2002) define it as a process of solving a problem utilizing solutions of similar cases in the past. CBR systems contain previous cases within a specific domain, which can be retrieved and benefitted as a similar problem is faced in the future (Wierenga, 2010). Companies have incorporated AI enhanced CBR systems in various use cases across multiple industries, two examples being new product development (Relich & Pawleowski, 2018) and marketing planning (Changchien & Lin, 2005).

### 2.2.2 Ethical Aspects of AI in Marketing

With the increasing impact of AI on personal lives and society, it becomes increasingly important to consider the ethical aspects of these intelligent systems (Baum, 2017). Picard (1997) suggests that the freedom of the intelligent system is correlated with the required number of moral standards. The emergence of these technologies has led to a debate over anthropomorphic behaviour in artificially intelligent systems (Stahl, Timmermans & Flick, 2016). This refers to machines being described as having human attributes, such as communicating and solving problems, which can mislead users and create scepticism in the trustworthiness of the technology (Stahl et al., 2016).

Especially in marketing, the ethics of AI widely concerns privacy. As companies collect large amounts of personal consumer data, that is both willingly and unwillingly (for example cookies in online environments) provided by the customer, they are highly responsible in treating it in an ethical manner (Martin & Murphy, 2017).
Along with the development of technologies such as artificial intelligence, the European Commission (2018b) has made changes to legislation regarding the collection of personal data. Introduced in 2016 and stepped in to force at the end of May 2018, the General Data Protection Regulation (GDPR) aims to protect individuals with regard to the use of personal data (European Commission, 2018b). For companies using customer’s personal information for marketing purposes, digital business will be simplified to protect the rights of all EU citizens (European Commission, 2018b).

3. Theoretical Framework

The theoretical framework for exploring the factors influencing knowledge-driven MMSS adoption is based on new technology implementation and adoption literature. New technology adoption per se is one step in the entire implementation process and includes gaining organizational backing for the technology (Cooper & Zmud, 1990). Organizational backing refers to management support, organizational commitment and allocation of sufficient resources to the project (Cooper & Zmud, 1990). New technology adoption theories aim to identify factors behind adoption and provide tools for better decision-making in the process (Oliveira & Martins, 2011). The previous literature of new technology adoption is extensive, and the numerous theories created in the research can be divided into two main categories: individual-level and firm-level adoption theories (Oliveira & Martins, 2011; Premkumar, 2003).

The most prominent and traditional individual-level adoption theory is the technology acceptance model (TAM) (Ukoha, Awa, Nwuche & Asiegbu, 2011) first proposed by Fred Davis in 1985 and then developed further to TAM2 and TAM3 (Lai, 2017). Other remarkable individual-level theories include theory of planned behaviour (TPB) by Ajzen (1985) and unified theory of acceptance and use of technology (UTAUT) by Venkatesh, Morris, G. Davis and F. Davis (2003). This thesis did not focus on these theories but acknowledged the importance of the models within the new technology adoption literature.

Instead, this thesis uses a firm-level adoption theory in researching the factors affecting SMEs in the adoption of knowledge-driven MMSS. This delimitation to firm-level was due to the authors’ willingness to research the adoption factors from a higher level than individual-level theories would have allowed. The technology-organization-environment framework (TOE) is among the most prevalent new technology adoption theories (Oliveira & Martins, 2011) and is one of the most insightful frameworks for IT and system adoption research (Zhu, Kraemer, Xu & Dedrick, 2004). TOE identifies and divides the factors of adoption into three aspects of enterprise context: technological, organizational and environmental (Seethamraju, 2014; Oliveira & Martins, 2011). TOE is also consistent with another widely-used firm-level adoption model, diffusion of innovation (DOI), but TOE develops it further by introducing an additional element of environmental context (Oliveira & Martins, 2011). Therefore, the theoretical framework of this research was built on the TOE framework.
Adoption is one step in the entire new technology implementation process, which Cooper and Zmud (1990) describe as an organizational process of diffusing new technology within a firm. Previous research in new technology implementation has created multiple stage models to explain the implementation process varying from a simple two-stage model to much more complicated ones (Premkumar, 2003). This research used Kwon and Zmud (1987) six-step IT implementation model to illustrate the role of adoption in the new technology implementation process. Several previous studies (Cooper & Zmud, 1990; Rajagopal, 2002; Statnikova, 2005) have based theoretical frameworks on this particular six-stage implementation model. The Kwon and Zmud model is coherent with DOI and incorporates the idea behind it (Statnikova, 2005). Since DOI is also in line with TOE as mentioned above, the Kwon and Zmud model can be used with the TOE framework.

Next, the Kwon and Zmud model and TOE framework are discussed in detail, and a research model for this paper is formed and introduced.

### 3.1 Kwon and Zmud Model

As mentioned above, the Kwon and Zmud (1987) model present new technology implementation as a six-step process. The scope of this study is limited to the adoption stage; however, it is important to obtain a full view of the process and how adoption fits into the process.

**Initiation**
During the first stage, organizational problems or opportunities are matched with appropriate IT solutions (Cooper & Zmud, 1990). The stage is completed once this match is identified.

**Adoption**
The end goal in the adoption stage is to achieve organizational backing and sufficient internal investments for the IT solution identified in the previous stage (Cooper & Zmud, 1990). The process of adoption stage includes negotiations between decision makers and other employees, after which a decision is reached whether to invest or not to invest in the implementation of the IT solution (Cooper & Zmud, 1990).

This research paper focused solely on the adoption stage and aimed to identify the factors that affect the adoption decision.

**Adaptation**
In the adaptation stage, the organization and its employees are prepared for the new IT system (Statnikova, 2005) and the IT system itself is developed to match the organization's needs, and installed for use (Cooper & Zmud, 1990).

**Acceptance**
The fourth stage includes persuading employees to commit to continuous usage of the IT system (Cooper & Zmud, 1990).
Routinization
The aim for the routinization stage is to make the IT system usage part of the normal activity and that governance of the IT system would not be required to the same extent (Cooper & Zmud, 1990). The IT system should be a norm at the end of the phase and regarded as nothing new.

Infusion
In the final stage, organizational effectiveness is increased by enhancing the company operations with the maximized use of the IT solution (Cooper & Zmud, 1990).

3.2 TOE Framework
As discussed in the previous section, new technology adoption is one step in the whole implementation process, and this thesis solely focused on this particular step. In this study, the factors influencing knowledge-driven MMSS adoption among SMEs were explored based on the TOE framework.

The TOE framework divides factors that influence the adoption process into three main categories: technological, organizational and environmental. The technological context describes the benefits and relevancy of the new technology for the firm, organizational context considers the internal characteristics of the firm and environmental context refers to the factors springing from external sources (Tornatzky & Fleischer, 1990; Wong & Aspinwall, 2004). The TOE framework provides a solid theoretical basis with empirical support from extensive research (Martins & Oliveira 2009). Further, since the specific factors within the three contexts can vary across different studies, the framework is applicable to a variety of technologies (Oliveira & Martins, 2011).

The TOE framework was originally presented in the paper “The Processes of Technological Innovation” by Tornatzky and Fleischer (1990). Since then, the TOE framework has been used to understand a variety of different technology adoptions, from e-commerce (Liu, 2008; Martins & Oliveira, 2009), to knowledge management systems (Lee, Wang, Lim & Peng, 2009) and CRM systems (Racherla & Hu, 2008). The TOE framework gives the researcher flexibility with regard to specific factors to choose from. For example, in the CRM adoption study by Racherla and Hu, (2008), perceived benefits, compatibility with existing IT systems, customer knowledge management, and pressure from competition are included. These factors differ from the original TOE version by Tornatzky and Fleischer (1990).

TOE has been employed both in the context of SMEs (Nguyen, Newby & Macaulay, 2015) and in the perspective of an unspecified organization size (Gangwar et al., 2014). Despite extensive research, researchers imply a gap in existing literature, where SMEs characteristics of the technology adoption and how well they fit in established frameworks, have not been taken sufficiently into account (Bharati & Chaudhury, 2009; Hoti, 2015).
3.2.1 TOE Framework for Knowledge-Driven MMSS Adoption in SMEs

The proposed TOE framework for this study was derived from and proposed by previous studies that explain the organizational adoption of advanced information technology systems (Tornatzky & Fleischer, 1990; Iacovou et al., 1995; Chau & Tam, 1997). Furthermore, the proposed TOE framework has been specifically used to understand CRM adoption among organisations (Racherla & Hu, 2008), which is one type of MMSS (Wierenga, 2010). Therefore, the proposed framework is argued to contain factors predicted to be relevant for exploring knowledge-driven MMSS adoption as well.

**Technological Context**

The technological context describes the characteristics of the technological innovation that is likely to influence the adoption decision (Wong & Aspinwall, 2004). According to the chosen TOE framework, the main factors influencing the adoption process from a technological perspective are perceived benefits and compatibility (Racherla & Hu, 2008).

*Perceived Benefits*

Perceived benefits refer to the degree of which, in this study, knowledge-driven MMSS system is perceived in providing intended benefits. In turn, benefits can be divided into two categories: direct and indirect benefits (Racherla & Hu, 2008). Direct benefits refer to operational enhancements, such as higher efficiency in customer processes as well as improved customer satisfaction (Bose & Sugumaran, 2003). A more concrete illustration of these perceived direct benefits can be such that knowledge-driven MMSS provides tools for harnessing data and gaining a more comprehensive understanding of customers that enables for higher efficiency in interactions across several customer touch points (Wierenga & van Bruggen, 2000).

Indirect benefits, on the other hand, refers to more strategic benefits of the adoption such as competitive advantage, value chain integration or increased firm valuation (Racherla & Hu, 2008).

*Compatibility*

While the perception of benefits is an important factor influencing adoption, the new technology must be in line with the technical context of the organization. Compatibility refers to the degree to which the new technology is perceived as consistent with existing systems (Schultz & Slevin, 1975). In any firm, it is likely that new technology must be integrated with the existing systems (Racherla & Hu, 2008). DeLone and McLean (2003) suggest higher satisfaction among employees will be reached with higher compatibility to existing systems.

**Organizational Context**

Factors within the organizational context describe internal characteristics of the organization that are likely to influence the adoption process (Wong & Aspinwall, 2004). Factors relevant to this study are firm size, existing technical skills, financial resources allocated, top management support and customer knowledge management (Racherla & Hu, 2008). In addition, company culture is also
included because of its perceived influence of adoption in the context of SMEs (Nguyen & Waring, 2013).

**Firm Size**

Firm size, defined as the number of employees in the organization, is argued to have a vital role in the technology adoption process (Kwon & Zmud, 1987). However, the opinions of whether firm size and adoption rate are positively correlated vary. It is argued that having fewer employees has its advantages towards successful adoption of new technology, as adopting a new technology often requires radical changes in the firm’s practices, operations and strategy (Zhu et al., 2004). Smaller firm size often leads to closer collaboration and intimacy among the employees, which may lead to faster decision-making and more flexibility in adapting to changes (Carvalho & Costa, 2014; Wong & Aspinwall, 2004). Furthermore, small firms often require less internal communication and coordination to achieve tasks, thus considered to be agiler (Zhu et al., 2004). Hence, from a managerial perspective, firm size and adoption are negatively correlated. However, large enterprises possess more financial and human resources, which leads to a greater capacity for adopting new technology and manoeuvre risk than their smaller counterparts (Armstrong & Sambamurthy, 1999). That may explain why some previous research suggests that financial and technical resources are the most profound drivers for technology adoption (Hirsch, Friedman & Koza, 1990; Swanson, 1994).

**Existing Technical Skills among Personnel**

It is argued that the presence of well-trained, motivated and highly skilled personnel is vital for successful technology adoption (Wright, 2003). Nguyen and Waring (2013) noted that a shortcoming that SMEs have in comparison to larger organizations is the access to technically skilled personnel. Larger organizations are more abundant in financial resources which assists them in hiring technically skilled personnel (Meredith, 1987). Moreover, lower degree of specialization of employees in their position is more common in smaller firms (Wong & Aspinwall, 2004), which may lead to insufficient expertise in implementing systems such as an MMSS (Wierenga & van Bruggen, 2009). Furthermore, the larger the organization is, the more sense sophisticated IT systems adoption make, as it is often needed in order to coordinate its activities both externally with its customers as well as internally within the multiple departments (Dasgupta, Agarwal, Ionnidis & Gopalkrishnan, 1999). From a human resource perspective, firm size and technology adoption are often positively correlated (Racherla & Hu, 2008).

**Financial Resources**

In comparison to larger enterprises, SMEs have smaller asset bases. However, a key difference is that the capital is to a significantly higher portion sourced from their owners (Nguyen, 2009). Consequently, SMEs are therefore often more risk-averse than large firms (Leyden & Link, 2004). In comparison, large firms have decisions made by managers who typically have a lower direct stake in the financial success of the firm (George, Wiklund & Zahra, 2005). This lower risk propensity of SMEs tends to limit SMEs capacity to take an economic risk and invest long term (Hunter, Gordon, Diochon, Pugsley & Wright, 2002). This tendency of being risk averse has been suggested as a major reason for the low adoption rate and success rate in new technology adoption.
among SMEs (Nguyen, 2009). In contrast, due to an abundance of resources, large companies tend to manage risk more easily, as well as having a more resilient infrastructure towards implementation failures (Nguyen, 2009). As a result, it is argued that large companies have a higher adoption rate of new technology and SMEs are almost always behind the adoption curve of new business technologies (Afuah, 2003).

**Top Management Support**

According to studies, top management commitment is essential for successful technology adoption (Herington & Peterson, 2000). Even more so in SMEs, as the general low-asset base equals less room for failure (Bharati & Chaudhury, 2009). Which may explain why management in SMEs are to a higher degree more involved in decisions from daily operations to future investments (Stanworth & Gray, 1992; Bruque & Moyano, 2007).

In terms of new technology adoption, it is argued that it is top management’s responsibility to align the technology with the objectives of the firm and ensure that the benefits will be delivered (Racherla & Hu, 2008). The alignment of the organization is thus affected by the relationship between the IT department and its business functions (Wade, 2001). Additionally, Wade (2001) suggests that sustainable firm performance often stems from a solid relationship between these fields. Thus, it is argued that mutual understanding between IT, management and business functions is essential for the firm’s ability to be responsive to new technologies. Moreover, it is found that the attitude, personality and supervision of those in charge plays a vital role in the decision of whether to adopt or not to adopt (Bruque & Moyano, 2007; Denison, Lief & Ward, 2004). Studies have shown that managers who have an IT background are more likely to pursue an adoption of new technology systems (Thong, Yap & Raman, 1996). Additionally, the higher the degree of IT background, the more likely it will be that the adoption of a new IT system will be successful (Guan, Yam, Mok & Ma, 2006).

**Customer Knowledge Management**

A key function of knowledge-driven MMSS is that the information gives a better understanding of the customers (Wierenga & van Bruggen, 2009). Thus, the ability and readiness of the organization to manage customer data is considered to be a major organizational factor in the adoption process (Racherla & Hu, 2008; Wierenga & van Bruggen, 2009). Customer knowledge management involves capturing of data, storage and analysis of data, and dissemination of the information to desired decision makers (Racherla & Hu, 2008). It is argued that many advanced customer relationship systems fail due to lack of information management (Sigala, 2005), and that the collection and use of customer information is frequently disintegrated (Cline & Warner, 1999). Thus, it is proposed that firms with existing customer knowledge management principles along with properly managed processes are more inclined to adopt support systems for customer handling and marketing decisions (García-Murillo, M. Hala & A. Hala, 2002; Racherla & Hu, 2008).

**Company Culture**

In the context of SMEs, company culture has a significant role in driving organizational change and adoption (Nguyen & Waring, 2013). In general, SMEs possess a more unified culture where
employees are more tied to one another and share similar values and beliefs, compared to large firms (Nguyen & Waring, 2013). This type of culture has the potential of having a less complicated process to achieve a behavioural change, such as adopting a knowledge-driven MMSS system. It can be further argued that firms that embrace a learning culture and are open to accepting new challenging tasks are more likely to absorb innovations within the organisation (Denison et al., 2004; Pansiri & Temtime, 2010). Moreover, it is argued that the firm needs to have the ability to absorb knowledge, transform it regarding its culture and use it in order to promote innovation and gain competitive advantage (Gray, 2006). Shortcomings of having a unified culture may be that the culture is easily shaped by the personality and perspective of the founders and managers (Wong & Aspinwall, 2004).

**Environmental Context**

The environmental context refers to the factors from external sources within the environment the organization operates in (Wong & Aspinwall, 2004). According to the chosen TOE framework, it is argued that the main sources of environmental pressure are competitive pressure, pressure from business partners and pressure from customers (Racherla & Hu, 2008).

**Perceived Competitive Pressure**

Competitive pressure refers to the level of pressure a firm experience from their competitors in the same industry (Oliveira & Martins, 2010), and from their business partners (Racherla & Hu, 2008). It is discussed that a high perception of pressure drives organizations to adopt new technology in order to stay competitive (Iyer & Bejou, 2003). Thus, competition is generally perceived as a positive factor influencing new technology adoption (Ramdani, Kawalek & Lorenzo, 2009). Competition can even be the main determination in driving adoption, where firms may adopt new technology solely due to the influence exerted by its competitors (Iyer & Bejou, 2003).

**Pressure from Customers**

Another influential external factor that influences a firm in the adoption process is their customers, who essentially are the foundation of the business. Customer pressure can be viewed from two perspectives, both as a motivational factor for companies to adopt new technology (Racherla & Hu, 2008) and as a deterrent factor for adopting new technology (Ackerman, Darrell & Weitzner, 2001). From a motivational perspective, the pressure to meet customer expectations has increased in the advent of the internet, where information is easily accessible and switching to new services is no longer more than a few clicks away (Buhalis & Main, 1998). Moreover, Lee, Kim and Pan (2014) argue that an appropriate database allows using technology to offer personalized marketing for each customer, which in turn will stimulate a reciprocal behaviour beneficial for both the customer and the company. From the deterrent perspective, in the midst of several data leakages, it is argued that the public awareness of the negative aspects of collecting data has increased (J. Karat, C. Karat, Brodie & Feng, 2005). Moreover, with upcoming information privacy regulations (European Commission, 2018b), it may have negative implications for the adoption of knowledge-driven MMSS by firms.
3.2.2 Research Framework

Based on above discussion of the factors affecting the adoption of knowledge-driven MMSS in SMEs, the pre-empirical framework below is constructed. It is used to guide the primary research and act as a reference point for analysis of results. The pre-empirical Berg, Savola and Tuohimaa (2018) framework is composed of previous research conducted by Kwon and Zmud (1987), Racherla and Hu (2008), Tornatzky and Fleischer (1990), Iacovou et al. (1995), Chau and Tam (1997), and Nguyen and Waring (2013), as introduced in section 3.2.1.

![Diagram of the research framework]

**Figure 1: Pre-empirical Berg, Savola and Tuohimaa (2018) framework**
4. Methodology

4.1 Research Philosophy

Identifying a research philosophy is the starting point of any research, as it is paramount to match the nature of the study and the knowledge extracted with the purpose of the study (Saunders, Lewis & Thornhill, 2012). Committing to a research philosophy aids the authors with avoiding irrelevant information, and help with making use of relevant data (Saunders et al., 2012). Depending on the type of research being conducted, a research philosophy determines the method in which a research question can be approached (Saunders et al., 2012). The philosophies can be divided into the following categories; interpretivism, pragmatism, realism, and positivism (Saunders et al., 2012).

At the core of interpretivism is an idea of people being different and interpreting the surrounding world in diverse ways (Saunders, Lewis & Thornhill, 2009). Therefore, the philosophy suggests it is important to differentiate whether the research focuses on humans or objects. As interpretivism accounts for the differences between humans, it is often perceived to be the most suitable philosophy for studying business, and in particular, marketing (Saunders et al., 2009). In marketing, the business situations are often manifold, unique and dependent on subjective perceptions, which interpretivism is able to regard (Saunders et al., 2009).

The authors of this thesis perceived interpretivism as the most suitable philosophy in regard to the purpose of this paper because of three reasons. Firstly, the concept of adopting knowledge-driven MMSS was expected to be influenced by various factors as seen in Figure 1 making adoption a complex and unique situation. These characteristics fit the philosophy of interpretivism. Secondly, this paper belongs, inter alia, in the research domain of marketing management reinforcing the choice of interpretivism. Thirdly, Creswell (2014) states that a qualitative study is appropriate if the concept is fairly new and not well-researched. As introduced in the problem discussion part of this study, interdisciplinary research between AI and marketing is limited, and AI should be studied more in-depth with decision support systems. Therefore, this research was conducted using a qualitative method. Additionally, Saunders et al. (2009) recommend interpretivism philosophy with qualitative study in order to consider differences between the research participants.

4.2 Research Approach

The two most prevalent research approaches provided by Saunders et al. (2009) are inductive and deductive approaches. They state that interpretivism and qualitative research are mainly associated with the inductive research approach in contrast to the deductive approach. In the inductive approach, data is first collected and analysed, and based on the analysis a theory is developed. On the contrary, in the deductive approach, a theory and hypotheses are developed before the data collection and hypotheses testing (Saunders et al., 2009).

This research has an inductive approach as the post-empirical framework (Figure 3) was created mainly based on the data analysis of the primary research. Since the pre-empirical framework (Figure 1) was built based on the previous empirical studies and presented before the primary
research, this study could have had combined approach as well. The differentiating factor of having only the inductive approach was that the data collection and analysis were not limited to the pre-empirical framework and this research did not create or test hypotheses. The previous data of the research topic is narrow and creating hypotheses based on that would not have reflected the unique nature of this topic. Therefore, interpretivism as the research philosophy, qualitative study as the research method, and induction as the research approach are in line.

4.3 Research Purpose

The purpose of this study is to explore the factors influencing knowledge-driven MMSS adoption in SMEs in Finland and Sweden. Saunders et al. (2009) associate exploration of a new field and gaining new insights with an exploratory purpose. Therefore, this thesis is categorized as using an exploratory purpose instead of explanatory or descriptive purposes, since the ambition was to explore a rather new field, where the authors aimed to gain new insights.

An exploratory approach focuses on investigating, understanding and interpreting data to provide a deep understanding of the research question (Saunders et al., 2012). Yin (2003) states that explanatory case studies are related to a theory-testing approach, while a theory-generating approach is relevant for exploratory studies such as this thesis. Since there is a lack of literature combining the disciplines of AI and marketing (Wierenga, 2010) along with the fact that AI lacks an agreed-upon definition (Corea, 2017), an exploratory purpose is suitable for this thesis.

4.4 Research Strategy

It is important to ensure one collects relevant, up-to-date information, which aids in finding relevant literature to the chosen topic of the thesis (Saunders et al., 2009). Therefore, it is important to choose a suitable research strategy.

Different research strategies provided by Saunders et al. (2009) include experiment, survey, case study, action research, grounded theory, ethnography and archival research. For this research, case study was chosen as the research strategy. Yin (2009) describes case study as a strategy that enables the researcher to get a deeper understanding of phenomena in a specific context, which corresponds with the aim of this thesis. Furthermore, Yin (2009) and Saunders et al. (2009) suggest that multiple case studies, where data is gathered from multiple sources, are preferred compared to a single one, as it allows for a wider discovering of the research questions and more reliable findings (J. Gustafsson & J.T. Gustafsson, 2017). For these reasons, nine case studies were conducted.

4.5 Research Time Horizon

This thesis follows a cross-sectional time horizon, rather than a longitudinal time horizon. Saunders et al. (2009), state that a study conducted at a particular point in time is considered to be cross-sectional, whereas a study of change and development of a phenomenon over time is considered to
be longitudinal. The motivation behind the choice was that the interviews were conducted once mainly due to the time constraints.

4.6 Data Collection

In order to answer the research question, review of existing literature was combined with a collection of qualitative primary data.

**Literature Review**

Table 1 below provides an overview of the data collection for the literature review. The table presents used databases, the main theoretical fields which the previous studies belong to and the most commonly used search keywords.

<table>
<thead>
<tr>
<th>Literature Review</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Databases</strong></td>
</tr>
<tr>
<td>Scopus, Google Scholar, Jönköping University Data Base Primo, Emerald insights, JSTOR</td>
</tr>
<tr>
<td><strong>Main Theoretical Fields</strong></td>
</tr>
<tr>
<td>New Technology Adoption, New Technology Implementation, Marketing Management Support Systems</td>
</tr>
<tr>
<td><strong>Key Words</strong></td>
</tr>
<tr>
<td>Knowledge-driven MMSS, MMSS, AI, SMEs, Marketing Management, New Technology Adoption, Implementation, Factors, TOE</td>
</tr>
</tbody>
</table>

**Primary Data**

To gain a comprehensive understanding of the factors affecting SMEs to adopt knowledge-driven MMSS, primary data was collected using interviews. Conducting interviews is a means to collect reliable and legitimate data for the research purpose (Saunders et al., 2009). Saunders et al. (2012) distinguishes interviews between structured, semi-structured and unstructured interviews. In contrast to structured interviews, semi-structured interviews allow the interviewee to further explain and develop their answers, which may add dimensions to the research (Saunders et al., 2009) that may not be addressed in the pre-empirical framework (Figure 1). These additional dimensions may be important for the study and are well-suited for research of exploratory purpose (Saunders et al., 2009). Semi-structured interviews are appropriate if the questions are complex and open-ended (Saunders et al., 2009), which corresponds with this thesis. Therefore, semi-structured interviews were chosen as the data collection technique.
This approach implies a mono-method research choice, as semi-structured interviews were the sole qualitative data collection technique with the corresponding data analysis technique (Saunders et al., 2009), which is discussed in section 4.7. In contrast, a multi-methods choice uses more than one data collection and analysis techniques (Saunders et al., 2009), which is not the case for this study.

Of the nine conducted interviews, two were conducted face-to-face and the remaining seven using video chat over the internet. Since the respondents were geographically widely dispersed, it was more suitable to conduct interviews online especially considering the time limits of this thesis. Sanders et al. (2009) emphasize the importance of creating personal contact with the respondent to gain better quality answers, and this may be more challenging via video chat. The authors of this thesis acknowledged the challenge and took extra time to create rapport with the respondents. Additionally, to ensure thorough and in-depth answers, the respondents were kept anonymous and they were informed of the anonymity in the beginning of the interviews.

4.6.1 Sampling

There are two main groups of sampling techniques, probabilistic and non-probabilistic, which are categorized based on the nature of sampling (Saunders et al., 2009). In contrast to probabilistic sampling, non-probabilistic does not include statistical means, and therefore, the probability of each case selected is not known (Saunders et al., 2009). Non-probabilistic sampling is based on authors subjective judgement and it gives the possibility to select participants depending on accessibility and availability (Saunders et al., 2009). This is a vital part as the authors of this thesis interviewed company representatives based on their availability, which is explained more in-depth in the next section. Non-probabilistic sampling is also associated with the case study strategy (Saunders et al., 2009) that is used in this thesis, reinforcing the choice of non-probabilistic sampling.

From the multiple non-probabilistic sampling techniques, self-selection was decided to be the most appropriate for this paper. With that technique, the researchers communicate their needs for the study, contact relevant prospects and collect data from the ones that are available and respond (Saunders et al., 2009). Self-selection is associated with the exploratory research purpose (Saunders et al., 2009), which was used in this research.
4.6.2 Case Selection and Interview Structure

To gain a comprehensive view of the knowledge-driven MMSS adoption, this study divided the interviewed companies into three different categories: providers, adopters and non-adopters. With this approach, the research had a 360-degree view of adoption and could attain perspectives from several angles. The discovered factors had a stronger foundation and strengthened the credibility of the research compared to having limited the study only to a single group.

The interviews consisted of five providers, two adopters and two non-adopters, of which seven respondents were from different parts of Sweden and two from the capital region of Finland. The criteria for the individuals interviewed was that they had to be in the top management of the company, and involved in both marketing and technical operations. This was due to the nature of the research topic, which combines technology and marketing at a managerial level. Overview of the respondents and respective companies is found in the beginning of the results section (Table 2). Possible prospects for the research were approached via LinkedIn, email and phone calls. In order to find relevant companies and contacts, 63 firms were approached, of which nine were interviewed. Next, more in-depth introductions of the three groups are presented:

**Providers**
Companies included as providers of knowledge-driven MMSS are two-folded. Firstly, they can be marketing agencies and/or consultancy companies who provide the knowledge and consulting for the adoption process. Secondly, providers can be software companies providing the software itself. These can also be mixed in a way that for example a marketing agency may provide both the
consulting and software. The criteria for selecting the providers was the following: the provided solution naturally had to be regarded as knowledge-driven MMSS, the company had to have SMEs as their clients and they needed to be based in Sweden or Finland.

**Adopters**
Companies referred to as adopters are firms that have adopted knowledge-driven MMSS to enhance marketing management within their organization. The main aim of interviewing the adopters was to discover the factors that drove the adoption decision. The companies opted as adopters had to have a knowledge-driven MMSS in place and the firm had to be an SME based in Sweden or Finland.

**Non-Adopters**
The third group included in the research is similar to adopters, except instead of having adopted knowledge-driven MMSS, they have planned for adoption but for particular reasons have decided not to go through with the adoption process. The primary goal was to discover the challenges and reasons behind the non-adoption. The criteria for the non-adopters was the following: the firm must had planned the adoption of knowledge-driven MMSS and the company needed to be an SME based in Sweden or Finland.

**Interview Structure**
Separate sets of open-ended questions were prepared for each of the three interview groups introduced above with slightly different questions and emphasises. The semi-structured interview templates are found in Appendices 1, 2 and 3. However, the authors were prepared to omit or add questions depending on the context and the direction of the interviews in order to follow the inductive approach, where the research is not limited to the existing theories. The questions asked in the interviews followed the pre-empirical framework semi-structurally to distinguish the factors influencing the adoption process. The questions were categorized according to the framework into technological, organizational and environmental factors while respondents were allowed to include additional factors on top of the ones introduced in the pre-empirical framework. The questions presented were open-ended, which probed the respondents to talk in an elaborative way.

**4.7 Data Analysis**
Increasing popularity of qualitative research has led to a corresponding increase in nomenclature within the qualitative data analysis methods (Newcomer, Hatry & Wholey, 2015). From the four main categories of enumerative, descriptive, hermeneutic and explanatory analytic methods (Newcomer et al., 2015), the results of this study were analysed with the descriptive method. The aim with the descriptive method is to recapitulate the results in order to compare and reflect between the nine case studies (Newcomer et al., 2015). The summarized data is evaluated for the purpose of finding conclusions and patterns. The descriptive method is an especially suitable alternative for analysing interviews used in the case study strategy (Newcomer et al., 2015).

The descriptive analysis method is divided into various sub-methods, where a widely used sub-method is matrix displays, in which the data is classified and categorized by topic (Miles,
Huberman & Saldana, 2014). From the classification of data, patterns of similarities and differences are discovered. In creating the data categories, the pre-empirical framework shown in Figure 1 was used as the base, but since the study has an inductive approach, the final categories were not necessarily limited to the pre-empirical framework. Table 3 displays the derived categories from the results and summarizes the case studies according to the matrix method.

Each factor was analysed based on the results from the nine case studies and determined to be either significant or insignificant to the adoption of knowledge-driven MMSS, and whether to be included in the post-empirical framework. The inductive approach used for the analysis of results allowed the authors of this thesis to make an improved version of the pre-empirical framework, and thus provide with analytical conclusions based on the results.

4.8 Ensuring the Quality and Credibility of the Study

Lincoln and Guba (1985) argue that there are four criteria that need to be considered in a qualitative research to ensure the quality of the study: credibility, transferability, dependability and confirmability.

Credibility is referred to as the extent to which the research findings represent the truth (Lincoln & Guba, 1985). To enhance the credibility of the study, triangulation technique was used, which refers to the use of various sources in the collection and analysis of data (Denzin, 1978; Patton, 2000). The theoretical framework of this thesis was derived from the previous studies of multiple researchers with varying perspectives. Additionally, qualitative primary data was collected from three groups of companies, providers, adopters and non-adopters, to include multiple perspectives within adoption of knowledge-driven MMSS. Review of findings was first conducted independently by the three authors after which the results were discussed and analysed together.

Confirmability refers to the extent to which the research findings are derived from the respondents’ experiences rather than the investigator’s perspective (Guba, 1981). In other words, it stresses the importance of neutrality and avoidance of biases. Since human biases can be argued to have an unconscious influence, triangulation of results and analysis described above was used in order to minimize that risk.

Transferability means the ability to apply the findings of the research to other contexts (Lincoln & Guba, 1985). To address the transferability concerns, detailed information regarding the methodology and method together with a description of respondents was presented in order to facilitate the transferability of this study. Therefore, a similar study could be conducted for instance on different firms in terms of size and geographical location. Additionally, the detailed description of the method and research design increased the dependability of this thesis. Dependability refers to the consistency of the findings, which alludes to the probability of the readers and authors of this thesis drawing equal conclusions (Guba, 1981).
5. Results

In the results section of this thesis, nine interview results are presented from nine company representatives. The interviews included five providers, two adopters and two non-adopters. The overview of the interviews is provided below in Table 2.

Table 2: Interview overview

<table>
<thead>
<tr>
<th>Case</th>
<th>Name</th>
<th>Country</th>
<th>Industry</th>
<th>Type of K-D MMSS</th>
<th>Nr.of emp. (2018)</th>
<th>Rev. kSEK (2016)</th>
<th>Position</th>
<th>Dur. (min)</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Provider 1</td>
<td>Swe</td>
<td>IT</td>
<td>ES + PM + CBR</td>
<td>1</td>
<td>N/A</td>
<td>CEO</td>
<td>45</td>
<td>21-03-18</td>
</tr>
<tr>
<td>2</td>
<td>Provider 2</td>
<td>Fin</td>
<td>Marketing</td>
<td>ES + PM</td>
<td>217</td>
<td>134,000 (2017)</td>
<td>CBO</td>
<td>53</td>
<td>28-03-18</td>
</tr>
<tr>
<td>3</td>
<td>Provider 3</td>
<td>Swe</td>
<td>IT</td>
<td>ES</td>
<td>15</td>
<td>N/A</td>
<td>Partner</td>
<td>72</td>
<td>25-04-18</td>
</tr>
<tr>
<td>4</td>
<td>Provider 4</td>
<td>Swe</td>
<td>IT</td>
<td>ES + PM</td>
<td>5</td>
<td>1,389</td>
<td>CEO</td>
<td>56</td>
<td>25-04-18</td>
</tr>
<tr>
<td>5</td>
<td>Provider 5</td>
<td>Swe</td>
<td>IT</td>
<td>ES + PM</td>
<td>10</td>
<td>10,000</td>
<td>CEO</td>
<td>65</td>
<td>19-04-18</td>
</tr>
<tr>
<td>6</td>
<td>Adopter 1</td>
<td>Swe</td>
<td>Marketing</td>
<td>ES</td>
<td>14</td>
<td>N/A</td>
<td>CMO</td>
<td>60</td>
<td>27-03-18</td>
</tr>
<tr>
<td>7</td>
<td>Adopter 2</td>
<td>Fin</td>
<td>Consumer Services</td>
<td>ES + PM</td>
<td>55</td>
<td>150,000 (2017)</td>
<td>CMO/CTO</td>
<td>48</td>
<td>03-05-18</td>
</tr>
<tr>
<td>8</td>
<td>Non-adopter 1</td>
<td>Swe</td>
<td>IT</td>
<td>-</td>
<td>4</td>
<td>1,127</td>
<td>CTO</td>
<td>62</td>
<td>20-03-18</td>
</tr>
<tr>
<td>9</td>
<td>Non-adopter 2</td>
<td>Swe</td>
<td>Consumer Services</td>
<td>-</td>
<td>8</td>
<td>3,348</td>
<td>CEO</td>
<td>41</td>
<td>07-05-18</td>
</tr>
</tbody>
</table>

K-D MMSS: Knowledge-driven MMSS
ES: Expert System, PM: Predictive Modelling, CBR: Case Based Reasoning

5.1 Providers

Provider 1

Background
The respondent operates a one-man marketing technology consulting company in Sweden, which was started in early 2017. He offers a variety of services within marketing technology focusing especially on marketing automation and AI-driven marketing solutions. The company does not provide software itself but rather guides companies in selecting appropriate outsourced marketing tools or even in building their own in-house AI-driven marketing solutions. Nearly all the firm’s clients are SMEs who do not have the required knowledge in their organizations.

The interviewed entrepreneur has a background in both technical and marketing sides of business. He worked within software engineering in the beginning of his career, after which he has had over 20 years’ experience in marketing and multiple years in marketing automation including AI. The
The entrepreneur has also written four books and releasing a fifth about AI in marketing in the near future.

**Technological Context**
The respondent emphasized that the main benefit customers expect from adoption of knowledge-driven MMSS is insights. The knowledge gained from the system can be utilized in various purposes such as in new product development and pricing of products. Insights often lead to more personalized and better-quality customer experiences. Other perceived direct benefits for SMEs include cost savings and improved efficiency in marketing. For example, the interviewee illustrated that SMEs are able to reduce time in gaining beneficial insights from the data. Looking at a higher level, perceived indirect benefits, companies expect the adopted solution to gain them a competitive advantage, revenue maximization and increased profits.

Based on the interview, compatibility between the new marketing solution and existing ones mainly depends on whether the service is outsourced or built in-house. Outsourced solutions are relatively easy to integrate but in-house solutions can be very complicated. According to the interviewee, the latter are firm-specific software development projects and compatibility depends on the complexity of the developed system.

**Organizational Context**
The most important factors for SMEs in adopting knowledge-driven MMSS are top management support, existing technical skills within the organization and data. The consulting entrepreneur said that the whole adoption process often starts from the top management and their vision has a key role. Top management in adopting firms tend to have a modern mentality, which in turn creates a company culture that drives innovation. Existing data is a vital requirement for companies to have in place before the adoption process, and data defines whether there is a fit between the company and the knowledge-driven MMSS system. According to the interviewee, financial resources are important only if the company intends to build an in-house solution. Outsourced solutions are very cost-effective and do not require large investments. This partially explains why the interviewee did not perceive company size as an important factor in the adoption process. Moreover, he suggested that industry plays a more important role in adoption since the technical capabilities among companies in different industries vary highly.

**Environmental context**
According to the respondent, investors, media and customers have a positive effect on the adoption decision of the knowledge-driven MMSS. Companies utilizing AI may have an easier time with attracting investors, which may be a consequence of large media attention of the technology. On the other hand, end-customer influence is more indirect as the demand does not come directly from the customers but rather through their purchase behaviour. Companies aim to increase efficiency in their customer-related activities. The interviewee brought up that legal matters are an important concern for companies especially after the introduction of the new GDPR legislation in the EU. Additionally, he said that competitors do not have an effect on the adoption decision as they often do not communicate their internal use of AI.
Ethical Aspects

The entrepreneur mentioned two ethical challenges with AI in marketing. His opinion was that the ethical issues are very important to acknowledge, but he did not think companies are considering them when adopting knowledge-driven MMSS. Firstly, the use of data and the new GDPR legislation are important to consider especially in the marketing environment. Secondly, the decision making of the AI software has become in some cases too complicated to understand, even for the software developers. This may pose ethical challenges if no one understands the unethical choices the computer has made.

Provider 2

Background

The company is an established marketing agency based in Finland. They provide an extensive range of marketing services varying from analytics, to AI-enhanced marketing, to content creation. Composing of 217 employees, the company has long been ranked as one of the top marketing agencies in Finland. Their customers range from SMEs to large international Finnish corporations. The company has had their own advanced analytics unit already since 2002, used for understanding data from customers. Recently the company has begun providing econometric models that predict and calculate the effect of marketing on the business, allowing their customers to maximise their ROI in marketing. The algorithms in these systems use machine learning, but the data is still gathered in an old-fashioned way, for example in the form of excel databases.

The interviewee has worked with digital marketing for 20 years, having spent 7 years at the marketing agency in question, and currently serves as the chief business officer (CBO). He has extensive expertise in marketing technologies and AI.

Technological Context

According to the interviewee, customers’ perceived direct benefits of adopting knowledge-driven MMSS include improved conversion rates, better insights of customer data and making marketing investments more viable, essentially increasing their ROI. These direct benefits lead to perceived indirect benefits in the form of competitive advantage and added value to customers. Regarding compatibility with existing systems, in some situations, the IT department is needed to make adjustments to the systems, but generally, the system is ready to use directly. Companies with vast amounts of data often have more sophisticated systems in place, making the transition to the MMSS smooth.

Organizational Context

The size of the company plays a significant role in the adoption of the knowledge-driven MMSS. Generally, large companies have an advantage in regard to large amounts of data. Whilst SMEs are often more agile in decision making, they often simply do not have enough data for the knowledge-driven MMSS to be a worthy investment. The interviewee expressed that firm size and existing technical skills are often correlated, where smaller firms generally have a lower level of technical
capabilities in terms of understanding and knowing how to use the technology. As for financial resources, the interviewee mentioned that large companies have more freedom when testing and adopting new systems. They have the resources to adopt new MMSS with smaller projects, and if it were to be a failure, it would not be a heavy hit financially. For SMEs, adoption is more of a full-scale operation where the whole company makes a change. Top management support was an important factor according to the interviewee as CEOs of SMEs are usually involved in the adoption process. In larger companies, top management is very far away from the process.

**Environmental Context**
Within the environmental context, the interviewee discussed about how many companies say that they have some form of AI in use when they really do not. Many firms feel the pressure from competitors and feel the need to adopt the systems themselves. “There is definitely a sense of urgency among companies to get their hands on these systems”, said the CBO. In addition, media attention on AI has an effect on companies, the interviewee was adamant that as with everything, the hype builds the companies’ interest and unwillingness to fall behind. Customer pressure was not an important factor in the view of the interviewee.

**Ethical Aspects**
The interviewee admitted that ethics is an important subject when it comes to data collection and the use of machines. The artificial intelligence itself is not the problem, as they work with algorithms that humans have made. It is up to humans to make sure that they are operating within the realms of ethics, and what the machines are allowed to do. In the future, these machines will be capable of doing a variety of tasks, with new legislation such as GDPR stepping in, these systems will most likely be limited to certain capabilities. When it comes to data collection, companies must communicate to their customers what data they are collecting and what they are using it for, so individual’s privacy is not breached.

**Provider 3**

**Background**
Founded in 2016, Provider 3 is a fast-growing technology company that offers a B2B sales intelligence tool. Their solution crawls the web for a huge amount of data and turns it into actionable insights and business opportunities. The company’s solution corresponded with being an expert system type of knowledge-driven MMSS since their product helps find the right prospects and gives suggestions on personalizing the communication.

The interviewee has a background in digital marketing and sales and is a Business Developer and partner at the firm. The interviewee first came across AI from his previous job where he worked with programmatic advertisements and bidding on Google AdWords.

**Technological Context**
According to the interviewee, their clients consist of a wide array of sectors and company sizes, from large Swedish newspapers to small technology firms, where the solution of Provider 3 helps
prioritize the leads. Therefore, the efficiency of marketing operations is increased. Moreover, the solution finds insights on potential new customers, creates prospecting lists, and helps in personalizing marketing and sales campaigns.

As for indirect benefits, their solution leads to competitive advantage. Moreover, the interviewee emphasized that their solution motivates the salespeople. The interviewee emphasized that salespersons nowadays are expected to be knowledgeable of the customer, and the knowledge-driven MMSS gives the desired support to the salesperson leading to increased employee satisfaction.

As most of the businesses already have some sort of IT system in place, compatibility was argued to be a major influencing factor in the adoption process. In order to ease the compatibility, the company has worked on making it easy to integrate their system with major CRM systems. Still, compatibility is a challenge for customers and the interviewee emphasized that they exert much energy into that.

Organizational Context
Based on the interview, the company’s sales process consists of them contacting the Sales Director of the potential client. With larger companies, which may often have multiple sales directors, it can be unclear who makes the final adoption decision. In contrast, smaller firms are generally more agile in the adoption process. In other words, firm size and adoption are not positively correlated in the respondent's view. Moreover, the respondent underlined the importance of existing technical skills in the adoption process. According to the interviewee, sales directors typically have limited knowledge of marketing/sales technology and have not used the type of solutions in the past. Consequently, digital tools are not at the top of the priority list.

In the respondent's view, existing technical skills and customer knowledge management were correlated, as depending on how sophisticated customer data management tools their clients have beforehand, the respondent could anticipate the level of technical knowledge within the firm. Moreover, top management support and financial resources did not play a key role in the adoption, since the knowledge-driven MMSS is fairly priced and involvement of top management is not necessary. On the other hand, client’s culture was an important factor in the adoption. According to the interviewee, inclusive company cultures are associated with adoption.

Environmental Context
According to the interviewee, competitive pressure was a major influencing factor in the adoption process. A common denominator among their clients was that they, in general, were operating in intensely competitive markets, such as ads sales. Where on the other hand, pressure from media or pressure from end-customers did not have that much of influence in the adoption process.

Ethical Aspects
Since the respondent's company only gathers already publicly available data, ethics did not play a vital role in the adoption process. In addition, the company had found a way to get around the
upcoming GDPR regulation. Since they deliver the insights as “news” for their clients, and as news are treated as an exception by GDPR, the company is not affected by the upcoming regulation.

**Provider 4**

**Background**
The company was founded in 2015 and offers a solution for e-commerce companies to turn complex customer data to value creating activities. More specifically, their service automatically reveals patterns from transactional and customer data in order to deeply understand consumer behaviour. Furthermore, their solution provides a recommendation engine that matches products to the right customers for increasing sales with automated actions.

The interviewee was the company CEO who has a background in media, e-commerce and international business. In his view, he has no technical background but rather a good understanding of the industry the company is mainly focusing at the moment.

**Technological Context**
According to the interviewee, the most general perceived direct benefits of adopting their service include improved data analysis, more efficient handling of marketing processes, lower cost of getting more evidence for marketing data, and overall improved performance. Looking at a higher level, perceived indirect benefits, customers expect the system to be a game changer regarding their positioning in a market, alluding to company valuation. The respondent also pointed out that individual company representatives may see adoption of their solution as an opportunity to enhance their own résumé. When it comes to compatibility, the respondent believed that SMEs, compared to larger companies have more ease to integrate the data-driven MMSS simply because of the size of the company and their agile nature.

**Organizational Context**
The respondent was of the view that SMEs are agiler because of their size, and thus the decision-making process can take between 1-3 weeks. In comparison, for larger companies, the process can take up to 6 months. Additionally, large corporations tend to have trust in more established providers and turn to them instead of the subject provider. Speaking of existing technological skills at the customer company, the interviewee mentioned that few people who say they understand the provider’s technology, actually understand it. To add on, the interviewee was very clear that it is difficult to do business with companies who have no understanding of the technology. The interviewee emphasized that customers need to have vast amounts of relevant and well-structured and easy-to-access data to experience a smooth transition. The respondent perceived this as the main challenge. Many customers are unaware of where they store their data and do not know how to access it. As for financial resources, the interviewee was of the view that it is a mildly important factor as the benefits outweigh the costs of adoption.

When it comes to top management support, companies have priority lists. This refers to the agendas of companies, adopting AI solutions are not necessarily the most important focus at the company.
The interviewee was of the opinion that top management support is a very important factor, as they build confidence in other’s decisions. In addition, visionary CEOs are vital to the growth of companies, and that can be seen with the adopting companies. Additionally, with SMEs CEOs have often initiated the adoption process and have the most interest in the technology. Discussing the subject of company culture, the respondent perceived it very important. This applies not only to the company’s ability to adopt knowledge-driven MMSS, but for all change within a company. “Cultures that embrace change will have better results”.

Environmental Context
The interviewee stated that competitor pressure is the most influential factor in adoption of knowledge-driven MMSS. Companies see that their competitors are using a certain product in their service, which causes them to act and consider adopting similar systems of their own. In addition, customer pressure is impactful, and recent public data scandals have had a negative effect in the arena of artificial intelligence and data collection.

Ethical Aspects
The respondent stated that data is the main ethical aspect to consider with regards to their customers but the company has solved the issue by collecting mainly anonymous data. This means that they do not match the data with the users who generate it. The CEO added, their aim is to have as little personal data as possible. Based on the interview, ethical aspects were not a key for their customers in the adoption process.

Provider 5

Background
The company was founded in 2013 and employs 10 people. The firm’s headquarters is located in Sundsvall, Sweden and their AI-development department is located in Kazan, Russia. The company offers intelligence tools and consultancy services to improve strategic decisions. They provide customers with market intelligence by gathering data from the external environment and combining that with analysis of internal data referred to as business intelligence. The combination of the two provides a comprehensive view of the company’s performance, which is then utilized with a predictive data analysis approach. Their clients consist of large companies and SMEs in multiple sectors.

The interviewee is the company’s CEO and founder. He has no technical background but has a career in journalism followed by a career in marketing and PR communication. The CEO got introduced to AI and data analysis through his son, the company’s CTO, who is according to the interviewee, one of Europe’s most prominent AI-specialists.

Technological Context
The direct benefits of Provider 5’s solution include insights and assistance for marketing and business decisions. As for indirect benefits, the interviewee pointed out that their system assists in predicting market trends on a global scale together with market development strategies. In other
words, client’s improved ability to expand internationally was seen as an indirect benefit. Compatibility was also an important factor. In order to ease the compatibility and be more relevant to their clients, the company has developed algorithms to match their solution with most common data analysis systems.

**Organizational Context**

In a typical sales process, the company usually seeks to work with top management as the adoption process is heavily depending on the organizational and business alignment. In their case, it is usually top management who influence and make the final buying decision, highlighting the importance of technical skills and top management support in the adoption process. However, a problem the interviewee emphasized is that not many customers have high-level competence in the field of AI and predictive analysis. To ease the adoption, they educate the company and the end-users on AI. The interviewee had not reflected much on company culture, but argued that the knowledge and technical skills within the company had a more influential role in the adoption process.

The interviewee emphasized that smaller firms are easier to sell to and work with, compared to larger one firms. This is mainly due to SME’s shorter and faster decision making processes. However, the interviewee also brought up that larger companies tend to prefer to work with large companies. Moreover, the interviewee argued that the price level of their solution, and financial resources required, were not the main issues for customers, as long as they understood the benefits of their solution.

As for customer knowledge management, the interviewee emphasized that their solution is not only dependent on internal data as their solution helps gather data. As a result, their clients are not that heavily dependent on sophisticated customer knowledge management to be in place beforehand. However, the interviewee emphasized that their solutions suggestions get more accurate with relevant data, thus the structure of data storage is of high importance.

**Environmental Context**

The interviewee argued he has noticed that management boards have started to push for AI solutions. Competitive pressure, media attention and the digital maturity of the industry was considered as the main drivers of that push. The interviewee argued that many are talking about the technology publicly, which influences managers to look into it. However, according to the interviewee, very few actually have an understanding of what AI is. For digitally mature industries, the interviewee emphasized a difference in pressure between industries, where for example the financial sector has been more driven to adopt AI compared to the health sector. As for pressure from their client's end customers, the interviewee did not view that as a strongly influential factor.

**Ethical Aspects**

According to the interviewee, ethical implications did not have influence over their client's adoption decision. The CEO emphasized that their customers have immense pressure to be more efficient and to survive and compete globally, so they do not really reflect on the ethical aspects. However, the
respondent admitted that ethical implications are important to think of. Moreover, with GDPR, they must work a lot with their clients that operate on the consumer side to compile with the new regulations.

5.2 Adopters

Adopter 1

Background
Adopter 1 was founded one year ago and developed around the idea of influencer marketing within employer branding. This refers to the way companies market themselves in front of potential employees. The start-up helps companies get in touch with social media influencers to market their employer brand online. The subject company uses knowledge-driven MMSS both internally and externally. Originally the idea was to have the system solely as an internal solution for gathering influencers from social media channels. However, since adopting AI, the company has also started utilizing it externally for pre-screening applicants in the recruitment process.

The respondent is the Head of Digital & Co-Founder of the company, with previous experience in employer branding. Her experience with AI is limited to what the respondent has studied online, where she has built a comprehensive understanding of what the technology is and what it can do for the company.

Technological Context
When asked about perceived direct benefits and direct impacts of AI to marketing, the interviewee stressed that together with the CEO, they believed the AI would increase efficiency and save time in the marketing process. In addition, the interviewee believed that an indirect benefit of adopting an AI system would be an increase in the value of the company, making it more attractive for investors. Talking about technological compatibility, the respondent expressed how small of an adjustment it was adopting the MMSS. There were no major changes in their existing systems. The system has enhanced their procedures, automating simple, tedious tasks and allowing more time for important work.

Organizational Context
The idea of adopting the knowledge-driven MMSS came from the CEO of the company, who has a background in the tech industry and is a keen follower of AI technology. Open and innovative company culture contributed to the smooth adoption. The cost of the system was not much of a factor, the interviewee expressed how the willingness of the CEO to have AI in their system trumped the price factor of the purchase. In addition, the company size was not a factor, even though the start-up is made up of 3 employees. According to the respondent, firm size plays less of a role than the motivation behind acquiring the MMSS and the intended purposes of use.
When it comes to existing technical skills, the CEO had the best understanding of the technology and oversaw the adoption process. The interviewee claimed that there was no shortage of technical capabilities during the adoption of the MMSS.

**Environmental Context**
Regarding competitors and external pressure, the interviewee talked about the ‘AI phenomenon’ and the hype that surrounds it. Companies are talking about it and boasting the fact that they use it in their services. Admittedly, competitor pressure was a factor, as the CEO felt that in order for them to separate themselves from other talent recruitment services, they had to have AI in their service. Pressure from customers was not evident, however from past experience, the interviewee was aware that customers are always looking for companies with the best performance, and due to that, the company felt the need to have a MMSS in place.

**Ethical Aspects**
The respondent was very aware of the ethical implications the company must consider with their product and the collection of personal data. With GDPR stepping into force, the company will have to be aware of what data they are collecting and where it is coming from. In addition, the company will strive to make it clear to their customers that they are collecting certain specific data and for which purposes. The respondent admitted that GDPR could make their business more difficult, as the system they provide collects mainly personal data, but she believed that with the right approach to the matter, ethical aspects of AI will not be an issue.

**Adopter 2**

**Background**
The company is a Finnish men's grooming chain with e-commerce and salons in six countries. Their business model is based on memberships as customers can buy different level yearly packages depending on their preferences. Higher level customers have priority in salons disregarding the queues. The company is currently using AI on a rather small scale in their e-commerce to automate and optimize the product recommendations. Their main AI project is still in the development phase, which will optimize their complicated haircut queuing system. The new solution will also include infrastructure around the queuing system in the form of data analytics and marketing automation. The marketing solution can be categorized as expert systems and predictive modelling.

The interviewee is the CMO and the CTO of the company and joined in November 2017. He has a background in business through his master’s degree in economics and previous job experience in management, sales and marketing technology. He was also responsible for introducing knowledge-driven MMSS to the current company.

**Technological Context**
The most important direct benefit of the knowledge-driven MMSS was improved customer experience. Tied with this aspect was improved personalization of marketing, which the company can gain through improved insights from the data. The company is also able to increase the
efficiency of their marketing through automatization. The indirect benefit that affected the adoption decision was competitive advantage. Even though the company was a market leader before the adoption, they can strengthen their position even more through the adoption of knowledge-driven MMSS. The CMO also mentioned that positive media attention was part of the indirect benefits.

According to the interviewee, the compatibility of the new solution was not a problem for them and they had a good situation with the current systems in place as they were mostly developed in-house. The interviewee added that compatibility is very important and they would be likely to have more challenges if the previous systems were outsourced.

**Organizational Context**

The CMO perceived that top management support, existing technical skills and customer knowledge management were the most influential organizational factors in the adoption of knowledge-driven MMSS. If the top management did not have vision and willingness to innovate, and therefore, not to be supportive of the new solution, there would not be a decision to adopt the solution. The respondent stated that top management support is closely related to the technical skills of top management. If the top managers are technologically competent, they understand the benefits that the knowledge-driven MMSS can provide and are more willing to support the idea. Top management also plays a key role in creating the company culture, and according to the interviewee, they had an open culture for innovation where the young average age of had an important role.

The company had collected relevant data but had not really utilized it to the fullest potential before the adoption of the new solution. The CMO said that the data is a key factor and that there needs to be enough well-organized data to gain benefits from the AI solution. He did not perceive that the company size per se has a big influence on the adoption. For the grooming chain, the resources did not play a key role but the CMO noted that naturally, financial resources are an important factor as money is required for the adoption of the solution.

**Environmental Context**

According to the interviewee, competitors had the strongest effect on the adoption of the environmental factors. Even though he did not know any other grooming chain that utilized AI in their marketing, he stated that increased competition affected the adoption decision. The company did market research about their customers, who perceived the AI solutions beneficial and were willing to use the type of service. Therefore, customers also had a role in the adoption decision.

**Ethical Aspects**

The CMO brought up the ethical challenge with data and perceived it to be a very important part of the adoption process. The company had thought about the ethics with the data already before the adoption of the new system, and their guiding principle was to not collect unnecessary data. The interviewee stated that it’s also important to communicate the ethical questions to customers. Therefore, the grooming shop is clearly sharing to the customers what data they are collecting and what are they using it for.
5.3 Non-Adopters

Non-adopter 1

*Background*

The firm is a Swedish mobile application provider with a focus on customer engagement. Their service enables B2B clients to create customized apps with integrated data-analysis. The firm is currently not using AI in their MMSS service but aims to have it included by the end of 2018. They are currently producing insights from data manually and the firm has planned to automate that function with AI.

The interviewee has been the chief technology officer (CTO) of the company from the start and is one of the co-founders. He has a technical background through his education in computer science and work experience in software development. Additionally, he has multiple years of experience in marketing and business development.

*Technological Context*

The CTO explained that the most important benefits for them in adopting AI into the offering would be to have a better service and provide more value to customers, increasing customer satisfaction. By improving the service and increasing the value, Non-Adopter 1 would be able to charge higher prices. Additionally, as mentioned earlier, the company is able to automate the analysis of data and therefore gain improved efficiency and save costs. Within the indirect benefits, the interviewee emphasized competitive advantage, and noted that AI will be needed in their offering in order to survive. Speaking on AI adoption in general terms, the CTO mentioned that an important factor is how quickly results are realized after the adoption. He did not reflect on compatibility.

*Organizational Context*

The CTO perceived that company size has an effect on the adoption and smaller companies have an advantage in the process. Since SMEs are generally agiler and quick to respond to changes in the market, they may be more eager to adopt AI into their organization. Large companies, on the other hand, may be satisfied with the way things are and too focused on the short-term cost AI would require. Partially connected to the firm size, financial resources have a strong effect on the adoption of AI. According to the interviewee, they want to build the AI capability into the offering in-house and therefore the cost will be relatively high. Since the financial resources are limited, there is a question of prioritization involved. For the firm, AI is not currently a top priority, even though it is high on the list. The CTO explained that the largest cost in adopting AI would be acquiring the scarce talent from the market, which simultaneously would be the main challenge. Top management support is an integral part in their case as they are on board on with adopting knowledge-driven MMSS in a near future.

One of the most important factors in the adoption for the firm is data. The interviewee highlighted the importance of having lots of data before adopting the AI system and that they are continuously
collecting as much relevant data as possible. In addition, he said that organization’s existing technical capability has a positive effect on the adoption.

**Environmental Context**
From the environmental factors, the CTO found customer pressure to be the most influencing factor to the adoption of AI. Since the customers expect the firm to include AI into their offering, they have a strong impact. Also, competitors are an important factor as the firm may be left behind if they do not adopt AI. According to the interviewee, company’s investors are not influencing the adoption decision.

**Ethical Aspects**
The CTO mentioned that the main ethical issues are related to value versus profits and openness to clients. With AI, the firm would be able to estimate the price points where the profits for the firm would be maximized, and the question is whether they are in line with the value provided. Also, firms must be extremely open to their clients on what they will do with the data, and even though GDPR has been introduced in 2018, it may not be strict enough. Companies could create their own standards of how open they are towards their customers and gain competitive advantage.

**Non-adopter 2**

**Background**
Based in Sweden and founded in 2011, the company runs a beauty e-commerce and provides software tools for point-of-sale, scheduling and payment systems for the beauty industry. Within the e-commerce side, they focus on drop-shipping, essentially meaning that they do not have their own stock. Currently, the company has eight employees.

The company is looking to adopt a knowledge-driven MMSS to solve their shipment problem and enhance their marketing. Since they do not have their own stock, automating the orders and shipment would save more time for important tasks. Currently, all shipments are sent manually and consume much time. Additionally, the company plans to personalize their marketing efforts and automate pricing in their e-commerce within the next 12-24 months.

The interviewee is the Founder and CEO of the company in question. He has extensive previous experience in sales and management. The interviewee does not have past technical experience with AI, but has gained extensive knowledge through self-learning.

**Technological Context**
Regarding perceived direct benefits of adopting knowledge-driven MMSS, the interviewee expressed the aim to improve the efficiency of the company’s marketing operations, especially with personalization. The interviewee also believed that this would increase customer satisfaction with their service. Other direct benefits included increased sales in e-commerce and lower shipment costs. The strongest indirect benefit proved to be competitive advantage. The interviewee mentioned how the e-commerce market is very competitive, and having any edge over competitors
when it comes to customer satisfaction and pricing will be of an advantage. Speaking of compatibility, transitioning from the current marketing automation system to the new MMSS will require a full replacement. However, the procedure will only take approximately one week, which will not be a big issue for the company.

**Organizational Context**
According to the interviewee, he was the initiator of the idea to look into adoption of knowledge-driven MMSS, which highlights the importance of top management support. Additionally, the company has an innovative culture and they are used to change enhancing the future adoption process. The interviewee talked about how the small size of the company is an advantage regarding short decision times and overall agility with making changes. However, being a small company, the disadvantage comes in the form of limited resources. In order for the company to fully go through with the adoption of the knowledge-driven MMSS, they will need further financial investment into the company. The interviewee claimed that the price of the solution is currently impossible to estimate. Regarding existing technical skills, the company will have to find AI talent to help in developing and operating the system, since the technical capabilities of the company are not at their required level. Speaking on data, the interviewee was of the view that they currently do not have enough transactions in their e-commerce business in order for a knowledge-driven MMSS to be viable. The ROI would simply not be worth it with the current volume of transactions.

**Environmental Context**
According to the interviewee, customer and investor pressure is not pushing them to adopt knowledge-driven MMSS, rather, competitor pressure is a strong driving force. Competitors are driving the company to look at new innovative solutions that allow them to differentiate themselves from others. Admittedly, media headlines on the potential of AI solutions morphing marketing strategies has pushed the interviewee to consider knowledge-driven MMSS in the first place.

**Ethical Aspects**
According to the interviewee, the main ethical consideration is about data. He had strong confidence in machines in assisting decision making as they do not have similar weaknesses as humans do. Humans will always have a bias to an extent whether they know it or not. Machines, on the other hand, have no emotion, only capable of reading data, meaning that one advantage of using knowledge-driven MMSS in the marketing decision-making process is that it is less biased. He noted that the ethical challenge is the person who creates the system whether he had proper and transparent intentions. Therefore, ethical aspects have a role in the adoption process. The respondent talked about GDPR that it will increase integrity within the industry but simultaneously require more work also in their company.
6. Analysis

Table 3: Summary of the results

After the results were compiled and placed in the above table, analysis on implications of each of the factors in the pre-empirical framework was done. Once each of the factors were analysed, the authors of this thesis constructed the post-empirical framework (Figure 3), as the inductive research approach suggests is possible.

Additionally, the authors analysed differences between providers, adopters and non-adopters in section 6.6. It was also found that distinction between in-house and outsourced solution was significant, which is discussed in the last section of analysis (6.7).

6.1 Technological Context

Perceived Direct Benefits
All the respondents perceived direct benefits to be a very influential factor in the adoption of knowledge-driven MMSS. The most common and important perceived direct benefits provided by the respondents included increased efficiency in the marketing process, better insights into customer data and cost savings. Other perceived direct benefits stated by some of the respondents included enhanced personalized marketing, leading to better customer experience. Wierenga and van Bruggen (2000) suggest that adoption of MMSS can specifically enhance data analysis and efficiency of the marketing management, which is in line with the results found in this study.
From all the investigated factors, perceived direct benefits provided the most coherent answers across the respondents. This could suggest that regardless of the nature of the company or industry, companies are looking to adopt knowledge-driven MMSS with similar motives. These motives are likely based on the similar nature of the problems and challenges, which knowledge-driven MMSS solve. The findings indicate a relationship between the direct benefits as a continuum from improved data analytics and insights to enhanced efficiency to cost savings. Alternatively, the common characteristics of interviewed firms may explain the similar responses regarding the benefits of knowledge-driven MMSS. Each interviewed company, or their clients, use the digital space as their main medium of operations, rather than the physical one. In that regard, it could be argued that a knowledge-driven MMSS makes more sense to adopt where the company promotes and interacts with their customers online already. As operating online generates more customer data compared to physical retailing, the building block for leveraging MMSS technology, data, is to a wider extent already in place. This may explain why every respondent had a positive attitude regarding the benefits of knowledge-driven MMSS.

To conclude, perceived direct benefits is an important influencing factor for the adoption decision of knowledge-driven MMSS, and is included in the post-empirical framework.

**Perceived Indirect Benefits**
Perceived indirect benefits proved to be an important factor behind the motivation to adopt knowledge-driven MMSS and the two most common benefits were increased competitive advantage and increase in company valuation. Other frequent responses included revenue maximization and employee satisfaction. Racherla and Hu (2008) refer to indirect perceived benefits as more strategic benefits of adoption such as gained competitive advantage, increased company valuation and value chain integration, strongly suggesting that the results are in line with theory.

Gaining an edge on competitors proved to be a common motivator independent of industry. In highly competitive industries such as retail, Non-adopter 2 was in the process of adopting a knowledge-driven MMSS because of the efficiency it can provide in multiple processes, gaining more customers and higher transaction volumes, resulting in gained competitive advantage. Similarly, Adopter 1 was looking to get one step ahead of their competitors in the recruitment industry by introducing a knowledge-driven MMSS that will help them and their customers recruit social media influencers faster and with more accuracy. The competitive nature of an industry could lead to companies looking at new innovative technologies such as knowledge-driven MMSS to gain competitive advantage. To conclude, indirect benefits are an important factor in the adoption process, and will be part of the final post-empirical framework.

**Compatibility**
Overall, technical compatibility was argued to be a strong influencing factor among the respondents. All the adopters, non-adopters and provider’s customers had in varying forms an already existing customer data management or relationship tool to keep track of their customers, measure their marketing activities, and customer interactions. From the provider's point of view,
majority of the respondents shared the view that compatibility is a key determining factor for the buying decision for new potential customers. As provider 5 argued, “When selling a B2B digital tool, you are by far not the first customer relationship service they have and if your product does not have a smooth compatibility with their existing systems it is a very hard sell”. Some of the providers had even experienced rejection from potential clients solely due to poor compatibility with existing IT systems. In contrast, if there was a high degree of compatibility, the adoption process, and eventually the usage of the knowledge-driven MMSS was more successful. This analogy corresponds with existing literature, as Racherla and Hu (2008) stated that in any firm it is likely that a new technology must be integrated with existing systems, and DeLone and McLean (2003) suggest higher satisfaction among employees will be reached with higher compatibility to existing systems.

Providers emphasized the firm size of the adopter to have a significant effect on the compatibility of the knowledge-driven MMSS. Firm size is often correlated with the size of IT system, which in turn is correlated with the complexity of the system. Derived from the interviews, complex IT systems pose challenges for the adoption process. Therefore, it can be suggested that SMEs have an advantage with regards to compatibility.

Adopters and non-adopters did not perceive compatibility as problematic for them but acknowledged its importance. The authors of this thesis argue that the perceived degree of importance differed between providers, adopters, and non-adopters because providers of knowledge-driven MMSS have more experience with companies of different sizes, structures and IT systems, and how it affects the adoption decision. Adopters and non-adopters view adoption from their own perspective and in general viewed their organization’s ability to adapt to change as high.

In conclusion, technical compatibility is a key factor in the adoption of knowledge-driven MMSS and thus will be part of the post-empirical framework.

6.2 Organizational Context

Firm Size
Firm size divided the respondents’ opinions widely, and there was no general agreement on the influence on the adoption of knowledge-driven MMSS. Most of the respondents perceived firm size as an influential factor but in different ways. The variance between the answers was based mainly on the agility of the decision-making process versus resources of the organization. Three respondents figured that smaller firms have an advantage in the adoption process since they are more agile to respond to changes in the market and their decision-making process is quicker. On the other hand, two respondents emphasized the fact that since large companies have more resources (financial resources and skilled employees), they are more capable of testing new technologies with smaller risks. The failure of the new technology would have less of an impact on larger firms.
The difference in the impact of firm size on adoption is coherent with previous research on new technology adoption. Multiple authors support the fact that agility of smaller companies simplifies the adoption process and makes it more efficient (Zhu et al., 2004; Carvalho & Costa, 2014; Wong & Aspinwall, 2004) while other authors perceive the resources and larger firm size having a more positive effect on the adoption of new technology (Armstrong & Sambamurthy, 1999). In addition, Bughin et al. (2017) connected the characteristics of early adopters of AI to be large companies with vast resources.

All the respondents including the providers were SMEs, which may pose biases in their opinions about smaller companies, and this may partially explain the majority of respondents leaning towards small companies in the adoption. Additionally, Provider 4 suggested that when it comes to the adoption of new technology, large companies prefer to work with established providers, emphasizing the bias within the responses.

Nonetheless, since most answers and previous literature supported the influence of firm size on the adoption, it is included in the post-empirical framework. Based on the contradiction between the answers about how the firm size affects the adoption, this study is not able to conclude whether small or large firms have an advantage in the adoption of knowledge-driven MMSS.

Existing Technical Skills among Personnel
Existing technical skills in the organization were considered an influential factor for the adoption of knowledge-driven MMSS. Each of the respondents perceived the factor as impactful, although providers emphasized it to a greater extent than adopters and non-adopters. Four providers mentioned that the existing technical skills are relatively low in their customers’ and prospects’ organizations, which leads to a challenge in communicating the features and benefits of the solution. The need for educating the customer, and therefore the difficulty of the sale, may explain why providers perceive existing technical skills higher than adopters and non-adopters. Generally, providers are naturally much more knowledgeable in the field of AI and technology as their operations are based on them, which may lead to understatements in their customers’ technical skills. The findings of the importance of existing technical skills in the organization correspond with existing literature, as according to Wright (2003), access to technically skilled personnel is vital for successful technology adoption.

Both non-adopters noted that they lack the required technical skills in order to adopt knowledge-driven MMSS, but simultaneously they perceived the financial resources as a more vital factor. Based on the findings, it can be argued that technical skills and financial resources are connected. Nguyen and Waring (2013) stated that SMEs have a disadvantage regarding access to technically skilled personnel, which would be in line with the lack of financial resources in comparison to larger companies. It can also be derived from the findings that the level of required technical skills is very dependent on the type of knowledge-driven MMSS and more specifically whether the solution is built and customized in-house or outsourced. For example, Provider 2 emphasized the difference between the two in regard to required software talent as he had experience from implementing both outsourced and in-house solutions.
Based on this section, existing technical skills have a strong impact for the adoption of knowledge-driven MMSS and thus is part of the post-empirical framework.

**Financial Resources**

There was a strong variation between the replies considering the role of financial resources in the adoption of knowledge-driven MMSS. The responses were heavily dependent on the cost of the exact system the respondents had operated with. In other words, the providers and an adopter whose knowledge-driven MMSS was considered to be low cost did not perceive financial resources as an important factor to the same degree as the other interviewees. It was also brought up that small companies generally have a disadvantage as they have less freedom to try new solutions since they have less resources. This was supported by previous literature as SMEs are not capable of taking as much risk, and therefore, do not adopt new technology as aggressively (Nguyen, 2009). By considering all the answers, the disadvantage is valid only with more expensive knowledge-driven MMSS, and especially the ones built in-house.

Even though interviewees had differing opinions about the importance of financial resources, most of them perceived it as an important factor. Therefore, the factor is included into the post-empirical framework. Financial resources are also further elaborated in sections 7.6 and 7.7.

**Top Management Support**

Top management support proved to be an important influencing factor for the adoption of knowledge-driven MMSS across providers, adopters and non-adopters. The impact was highlighted especially among adopters, where the initial idea and the decision of adopting knowledge-driven MMSS were brought on by top management in both companies. Additionally, the top management within non-adopters was highly involved in preparing the future adoption of the AI solution. This can be argued to highlight the importance of top management to understand the technology and skill to align it with the business objectives to reach a successful adoption.

From the provider perspective, it was argued if top management would not understand the technology, the adoption process was less likely to succeed. According to literature, Guan et al. (2006) argued that the higher degree of IT background among the top management, the more likely the company is to pursue adoption. Thus, that view is both confirmed and disagreed upon with the empirical findings. According to the empirical findings, the top management of adopters did not have extensive IT background but rather more experience in business and marketing. However, according to interviews, they had a fair understanding of utilizing AI technology in their company. Therefore, it can be concluded that background and expertise in AI technology per se are not as necessary as understanding how to employ it within the company.

Nonetheless, top management support was shown to have high importance for the adoption of knowledge-driven MMSS, thus, it is included as a factor in the post-empirical framework.

**Customer Knowledge Management**
Customer knowledge management (CKM) was regarded as one of the most important organizational factors in the adoption of knowledge-driven MMSS as each of the respondents perceived it to be essential for the adoption process. The solutions of four out of five providers are very depended on the amount and quality of data their customers have. The indication is that the better CKM companies have, the better the knowledge-driven MMSS functions. Most of the respondent discussed data being a key determiner if the organization has a good fit for knowledge-driven MMSS or not. An important differentiator between the adopters and non-adopters in this study was the amount of data they have since both of the non-adopters highlighted the need for more data before adopting an AI solution. Accordingly, Wierenga and van Bruggen (2009), state that key aspect of MMSS is to utilize data to gain a better understanding of the customers pinpointing the importance of data.

Based on the interviews, data could be described as the fuel for knowledge-driven MMSS and without enough of data, adoption is not feasible. Therefore, data is related to the return on investment (ROI) of the knowledge-driven MMSS, which was brought up by few of the interviewees. Additionally, according to the interviewees, a successful adoption requires both an amount of data and structure of data to be in place. This suggests that the companies with professional data management, the ability to organize useful data, are an advantage in the adoption of knowledge-driven MMSS. Racherla and Hu (2008), and García-Murillo et al. (2002) explained that firms with existing CKM capability are more willing to adopt new technology, which matches with the findings from the interviews.

Considering the high importance of CKM for the adoption of knowledge-driven MMSS, it is included as a factor in the post-empirical framework.

Company Culture
The respondents had relatively similar opinions about the role of company culture in the adoption process of knowledge-driven MMSS, and seven out of nine of them considered it as influential. The two common themes among these positive perceptions were the type of the culture driving adoption and role of top management. Most of the respondents mentioned openness and innovativeness as they described what type of culture drives the adoption of knowledge-driven MMSS. Interviewees agreed that top management has a strong impact on the creation of the type of culture explained earlier, which can be linked especially to SMEs.

Nguyen and Waring’s (2013) research is in line with the findings of this thesis as they perceive company culture to be a significant driver of adoption in SMEs. Denison et al. (2004), and Pansiri and Temtime (2010) found that companies with open and learning-enforcing cultures are more likely to adopt new innovation, which is also supported by the primary research of this thesis. Wong and Aspinwall (2004) expressed their doubt that the culture in SMEs may be very influential for the personalities and biases of the top management. The results of this study support that the culture is very much affected by the top management but is not able a stand whether it is a negative or positive issue.
Based on the findings and analysis above, company culture is an influential factor in the adoption of knowledge-driven MMSS into SMEs and is, therefore, included into the post-empirical framework.

6.3 Environmental Context

*Competitive Pressure*

Derived from the empirical data, pressure from competitors was regarded as the most influential factor in the environmental context. All the respondents except one provider perceived competitor pressure as an important factor. Even the interviewed non-adopters that had yet to initiate the adoption process shared the opinion that to stay competitive, and even to survive, they need to adopt knowledge-driven MMSS in the near future. As the CTO of non-adopter 1 argued, “We have to adopt the technology this year in order to stay competitive and to grow our business”. The influence of competitor pressure is supported in the previous literature as Iyer and Bejou (2003) state that competition can be the main driver for organizations to adopt new technology, and therefore stay competitive. Although the primary research recognized the strong influence of competition to the adoption of knowledge-driven MMSS, this thesis is not able to conclude whether it is the main driver of adoption.

Oliveira and Martins (2010) explain that competitive pressure refers to the level of pressure a firm experience from their competitors in the same industry. In other words, industry and competitor pressure can be complicated to separate in that regard, which may explain why only two out of nine respondents reflected on the impact of the industry on the adoption. The remaining seven companies mainly discussed their competitors independently from the industry. As discussed indirect benefits, a common characteristic among the respondents is that they operate extensively in an online environment. Therefore, to succeed in the competition within the online dominating environment, companies may be pressured to acquire AI solution for their marketing to stay competitive.

Most of the respondents brought up that the competition requires them to innovate and separate themselves from the competition. Lilien et al. (2002) discussed already in the beginning of 2000s about the growing demand and benefits of knowledge-driven MMSS for marketers even though not many practitioners were using them. Respondents acknowledged that knowledge-driven MMSS is the next advancement in marketing technology and therefore, it can be concluded that companies aim to adopt it to gain the direct benefits described above before their competitors. This would then lead to the indirect benefits such as competitive advantage over their competitors.

As for pressure from business partners, only one respondent reflected on the issue, which points out that it is not a key factor to the adoption process of knowledge-driven MMSS based on this study.

Based on the findings and analysis above, competitive pressure is an influential factor in the adoption of knowledge-driven MMSS into SMEs and is, therefore, included into the post-empirical framework. Competitive pressure can be stated to include competitor pressure and industry pressure but business partners were not relevant to include according to the results of this thesis. Competitor pressure
and industry pressure are kept under the same header, competitive pressure, since as argued earlier they may be irrelevant to separate.

**Pressure from Customers**

There was a strong variation between the replies considering the role of customer pressure in the adoption of knowledge-driven MMSS. Nearly half of the respondents did not perceive customer pressure to have an influence on the adoption while the other half considered it to have an impact or even significant impact. A common theme among the companies that did not perceive customer pressure important was that the customers rarely know that the company is using AI solutions in their marketing or offering.

Previous literature suggests that customer pressure has two perspectives. Firstly, it is a motivational factor for companies to adopt new technology (Racherla & Hu, 2008), as customers’ expectations are high and have low switching costs (Buhalis & Main, 1998). Two of the respondents argued that customer pressure has an indirect effect in driving adoption, which is in line with the customer pressure as a motivational factor. Customers do not directly pressure the company to adopt MMSS, but the pressure is rather indirect, as they desire the best products and services. As knowledge-driven MMSS can enhance firms marketing management, and therefore their offering, the two responses match the previous research presented above. For example, Adopter 2 had conducted market research before the launch of knowledge-driven MMSS to maximise the customer experience.

Secondly, customer pressure can be examined as a deterrent factor for adopting new technology (Ackerman et al., 2001) as customer perceptions of data have become negative because of the negative publicity of for example data leaks (Karat et al., 2005). Only one respondent argued that the awareness of personal data collection had a negative effect on the adoption process. Based on the results of this thesis, the customer pressure as a deterrent factor is not relevant for the adoption.

To conclude, the pressure from customers divided the opinions widely between the respondents about the importance for adoption. There is no ground in neglecting the factor and it is therefore included in the post-empirical framework.

**Media Attention**

An additional factor, not mentioned in the covered literature, but which was discovered to be of importance in adoption of knowledge-driven MMSS was media. Seven out of nine respondents had the perception that the current media attention around AI has influence in adoption. Commonly, many of the interviewees connected media attention in the initiation of adoption process of knowledge-driven MMSS as it may encourage top management to start exploring the possibilities with AI. It can also be derived from the interviews that media attention was linked to competitor pressure since companies want to be at forefront of development and not fall behind the competition.
Considering the high response rate and positive perception of media in adoption, media attention is included in the post-empirical framework despite the topic not being mentioned in the covered literature.

6.4 Ethical and Legal Aspects

Opinions about the importance of ethical aspects to the adoption of knowledge-driven MMSS altered greatly between the respondents. Four out of five providers considered ethical implications not of great relevance for firms in the adoption process while all the adopters and non-adopters perceived it as an influential factor. This represents a clear mismatch, and providers did not seem to grasp the importance of ethical aspects for their clients.

The most common theme across the replies regarding the ethical aspects was data and the new GDPR regulation. Seven companies brought up the regulation in the discussion, and these companies pointed out the importance of the legislation to the adoption process. Two of these companies perceived GDPR, and therefore legislation, as an important factor, and simultaneously ethics as an unimportant one. This highlights the fact that legislation and ethical aspects should be separate factors.

Most of the respondents who perceived ethical aspects as important mentioned openness and need of communication with customers regarding the collected data. It was agreed that firms should communicate the type of data they collect and how they are going to utilize it. Previous literature supports the transparency with customers as communicative and problem solving technology may mislead customers and create skepticism (Stahl et al., 2016). GDPR will also regulate the area but the question is whether the regulation will be sufficient enough as suggested by Non-adopter 1.

Non-adopter 2 was of the view that knowledge-driven MMSS are actually more ethically correct than humans. This stems from the fact that humans portray biased behaviour in the decision-making process, whether they know it or not. Wierenga and van Bruggen (2000) state that marketing managers tend to act as satisfiers rather than optimizers in the decision-making process, meaning they make decisions that are most desirable for some, but are not necessarily the most optimal for the business. Wierenga and van Bruggen (2000) suggest that considering the aforementioned point, marketing decisions are less biased if MMSS are used as machines have no emotions. Along the same line of discussion, Provider 1 made the point that these systems themselves are not unethical, as they learn with algorithms input by humans. Therefore, it is the motives behind the system, and the intended purpose of using the technology in marketing processes that can portray unethical behaviour.

Even though ethical aspects and legislation were not included in the initial pre-empirical framework, and therefore, not analysed in detail in the literature review, they are influential factors to the adoption process based on the collected primary data. The two factors of ethical aspects and legislation will be kept separate, which was motivated above, and added to the post-empirical framework.
6.5 Post-Empirical Framework

Analysis of empirical results together with previous literature (Kwon & Zmud, 1987; Racherla & Hu, 2008; Tornatzky & Fleischer, 1990; Iacovou et al., 1995; Chau & Tam, 1997; Nguyen & Waring, 2013) provided a post-empirical Berg, Savola and Tuohimaa (2018) framework. The framework highlights the factors influencing adoption of knowledge-driven MMSS in SMEs.

Figure 3: Post-empirical Berg, Savola and Tuohimaa (2018) framework

6.6 Providers versus Adopters versus Non-Adopters

This thesis aimed to gain a 360-degree view of the knowledge-driven MMSS adoption by including providers, adopters and non-adopters. It is important to acknowledge the similarities and differences among the three groups to obtain a deeper understanding of the adoption process.
By looking at the summary of results (Table 3), it can be pointed out that providers, adopters and non-adopters mainly perceived similar factors to affect adoption of knowledge-driven MMSS. Based on the similarities among the groups found in the primary research, it can be argued that providers have a good understanding of their customers regarding the factors affecting adoption. However, two factors, financial resources and ethical aspects, had more distinguished variations between the groups, which are discussed in the following subsections.

**Differences in Perception of Financial Resources**

According to the results, neither the providers nor the adopters regarded financial resources as a highly influential factor SMEs to adopt knowledge-driven MMSS. On the contrary, both of the non-adopters perceived financial resources as one of the main inhibitors of not yet having adopted knowledge-driven MMSS. The question is, where does the difference spring from?

A common theme around the respondents not perceiving financial resources as a key factor was that the benefits of the system outweighed the cost. The development of knowledge-driven MMSS is still in an early phase (Wierenga & van Bruggen, 2009), which may indicate that a considerable amount of companies are not aware of the benefits of knowledge-driven MMSS or the actual cost to adopt that kind of solution. This could have been a reasonable explanation for the differences between non-adopters and the other two groups, however, both of the non-adopters understood and praised the benefits of the solutions. On the other hand, a common denominator among the non-adopters was that they desired to build the solution in-house, which was found in the primary research to be a more extensive and expensive process than outsourced solutions that most of the providers offer. Therefore, providers may not have reflected the in-house perspective in their answers about financial resources. The differences between in-house and outsourced solutions are discussed more in-depth in the next section (7.7).

To conclude, although non-adopters realised the benefits of knowledge-driven MMSS, the rationale for the differences in perceptions of financial resources between non-adopters and the other two groups simply seem to be that non-adopter do not have enough capital. To illustrate, Adopter 2 noted that the financial resources were not the main factor of the adoption, but naturally, the organization needs to have it in place to be able to acquire talent and the technology.

**Differences in Perception of Ethical Aspects**

As mentioned in section 7.4, ethical and legal aspects of adoption, there was a mismatch between how adopters and non-adopters perceived the importance of ethics in contrast to providers in the adoption of knowledge-driven MMSS. The results imply that the providers did not regard ethical aspects as highly influential as the adopters and the non-adopters did.

From the provider perspective, it could be argued that when an aspiring adopter seeks to adopt their solution, the main objective for the provider is to enhance adopter’s business operations. Therefore, they may not perceive the adopter’s ethical implications as high as other factors. In the end, it is the adopters who use the systems for marketing purposes and are therefore responsible for the customer data handling. Thus, ethics may have a more direct influential factor for adopters and non-adopters
compared to providers and they may be more diplomatic and politically correct when asked about their view of their customer data. This mismatch could also exist because adopters may not seek ethical advice from their providers, rather discuss it internally. However, the last analogy is neither confirmed or denied with the empirical data of this thesis.

In contrast to the disagreement on the importance of ethics, the three groups were coherent regarding the importance of legislation in the adoption process. However, it could be argued that companies do not have a choice other than to follow legislation, as operating otherwise would be a criminal act.

6.7 In-House versus Outsourced Knowledge-Driven MMSS

Distinguishment of knowledge-driven MMSS between outsourced and in-house solutions was something that the authors of this thesis had not considered at the time of construction of the literature review and the distinction was not mentioned in the reviewed literature. In primary research, the division between the two emerged to be important regarding differences in certain factors in adoption of knowledge-driven MMSS. Therefore, it is meaningful to acknowledge the difference.

In-house development of AI solutions was found from the primary research to be a more complicated, costly and extensive project compared to outsourced solutions. Therefore, the results showed that more financial resources and more technical skills are required from the organizations wishing to build systems internally. Thus, the two factors may be more important for these companies as it was found with the non-adopters. Both were lacking the financial resources to acquire AI talent. Additionally, Provider 2, who was a consult within marketing technologies, argued the scarce AI talent to be the main challenge for companies that want to develop the system in-house.

Common reasons behind the desire to develop solutions in-house were linked to the benefits. By having an internal solution, adopters have more control over the solution, and thus, are not as reliant on external parties. With customized knowledge-driven MMSS, companies can tailor the software based on unique characteristics of the company to maximize the benefits. Additionally, predefined outsourced solutions may not be able to fulfil firm’s perceived benefits for the knowledge-driven MMSS, as with Adopter 2.
7. Discussion

During this thesis, the authors encountered several surprising discoveries. Prior to this study, the authors had the view that AI enhanced business solutions were only reserved for large, financially abundant companies, as news on several large IT firms initiating their AI development plans for several billions of dollars has been making headlines. The motivation behind this thesis was to discover how SMEs can leverage the benefits of knowledge-driven MMSS to the same degree as large companies. Over the course of working on this thesis, learning of the amount of innovation that is ongoing in Finland and Sweden has been a pleasant surprise. More specifically the concentration of SMEs being at the forefront of AI development in marketing purposes has led the authors to believe that the purpose of this thesis is significant. Moreover, all the respondents appraised the timing of the study as it is a topic on top of many agendas at innovative companies. The novelty of research on the topic of this thesis in academia, combined with a high interest in the study among respondents, justifies efforts in answering the research question. Due to high interest in the topic, all the respondents have requested to read this thesis.

7.1 Managerial Implications: Successful Adoption

The authors of this thesis have the aspiration that the developed post-empirical framework will serve as a guiding tool for managers in SMEs looking to adopt knowledge-driven MMSS into their organizations. The framework can be used to gain a more profound understanding of the factors influencing the adoption and enlighten SMEs on possible challenges in the adoption process. Therefore, SMEs would possibly experience a more successful adoption. This section provides additional aspects on top of the developed framework regarding the adoption process.

Based on primary research, the mind-set of the organization, especially among top management, is ultimately the first thing needed. Introducing new technology to an organization is a process of change, and it is important to understand that it will most likely include multiple challenges. Therefore, the organization should not be afraid of mistakes and embrace innovation in order to succeed.

Secondly, it is vital to deeply understand the operations within the organization and recognize which processes could be profitably enhanced with the help of AI. A common suggestion among the respondents was to identify manual and repetitive processes in the marketing operations and automate them as the technology is very suitable and effective for those types of tasks. This leads to the need for top management to understand how to align AI and the organization’s business operations. However, it does not seem that specific technical skills for AI technology among top management is required.

Thirdly, it was emphasized in the primary research that companies should start with one project to discover the technology and expand gradually, thus limiting the risk. This is linked to the characteristics of SMEs as they have fewer resources and are less risk-averse.
Finally, before the adoption of knowledge-driven MMSS, it is crucial to have data in place as it is the foundation of AI. Most of the respondents argued data to be one of the key challenges. Companies should consider the amount and the structure of their data before seriously planning the adoption. As one of the providers described data and knowledge-driven MMSS: “trash in - trash out”.

7.2 Limitations and Suggestions for Future Research

Firstly, the use of the TOE framework as the basis of the primary research can be considered as a limitation. As seen in the analysis of primary research, many of the factors in the framework are very related to each other. To illustrate, customer knowledge management and compatibility proved to be connected. The authors encountered challenges in distinguishing the factors from each other for the sake of analysis. To be able to come to a conclusion, analysis of the factors was completed despite the challenges. This is something future researchers should have in mind. In addition, the authors of this thesis suggest future research to expand the scope of this thesis and explore the factors influencing SMEs in later stages of knowledge-driven MMSS implementation process.

Secondly, due to the rather limited sample size consisting of only SMEs, in general, with only positive attitudes towards knowledge-driven MMSS, this thesis may suffer from biases. Therefore, those biases may be the most visible in the following factors: perceived benefits and firm size. To gain an improved understanding of the factors affecting adoption process of knowledge-driven MMSS, future research could limit their scope solely on large companies in comparison to SMEs. Additionally, since this thesis focused on SMEs only in Finland and Sweden, it would be of great benefit for a larger audience if a similar study was conducted in a different region of the world. This would enable future researchers to analyse the significance of geographical location and possibly different economic settings for adoption of knowledge-driven MMSS.

Thirdly, authors of this research recognize limitations with the qualitative nature of the research. Although it enables researchers to gain a more comprehensive understanding of the research question, it has a risk of not fully excluding subjective biases. Additionally, the semi-structured nature of the interviews can be seen as a limitation, since questions were asked in a different order based on the flow of the discussions. The respondents may have emphasized certain factors more than others due to this. Future research could conduct a quantitative research instead of a qualitative one to statistically test the proposed post-empirical framework.

Moreover, authors of this thesis suggest future research to explore the differences in adoption of outsourced and in-house developed knowledge-driven MMSS, and what drives a company to pursue either one. This was a recurring topic of discussion during interviews as mentioned earlier. Future research could focus specifically on either outsourced or in-house knowledge-driven MMSS adoption in SMEs.
8. Conclusion

The purpose of this thesis was to explore the factors influencing knowledge-driven marketing MMSS adoption in SMEs in Finland and Sweden. In order to answer the research question, and fulfil the purpose, several steps were undertaken. First, a literature review was conducted to provide an understanding of knowledge-driven MMSS, new technology adoption and factors influencing adoption in SMEs. From previous literature, a theoretical framework was created serving as a guide in the primary research. Secondly, a qualitative research was conducted that involved semi-structured interviews with nine different SMEs in Sweden and Finland that either provided knowledge-driven MMSS, had adopted it or had planned the adoption. This approach formed a 360-degree view of adoption, and therefore, more credibility for the thesis. The results were evaluated and analysed with the assistance of the pre-empirical framework derived from previous studies. Based on the analysis, the post-empirical framework was developed including the factors influencing adoption of knowledge-driven MMSS in SMEs:

- Technological context: direct benefits, indirect benefit and compatibility.
- Organizational context: existing technical skills, financial resources, customer knowledge management, top management support, firm size, culture and ethical aspects.
- Environmental context: perceived competitive pressure, pressure from customers, legislation and media attention

All the factors included in the pre-empirical framework were found to be relevant for the adoption of knowledge-driven MMSS. In addition, this study has indicated ethical aspects, legislation and media attention as influential factors in adoption. The developed post-empirical framework needs to be tested in future research to verify its validity.

This study has contributed to the identified gaps and existing theories in the literature by taking SMEs' characteristics into account on new technology adoption and conducting an interdisciplinary research on AI and marketing with special focus on factors influencing adoption.
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Appendix 1: Interview Structure - Providers

Background

- **Firm related**
  - What does your company do? Industry?
  - What is the number of employees? Revenue?
- **Person related**
  - What do you do within the company? Title?
  - Past experience, what have you done before and how long have you been working at this company?
  - What is your experience within AI / marketing / other technology?
- **General questions about the AI solution in marketing**
  - What type of AI solution do you provide for marketing purposes?
  - Why did you decide to start providing AI solutions?
  - Do you develop the system in-house or do you outsource it?
- **Customer related**
  - Who are your typical customers? In terms of firm size, industry?
  - What do they use the AI solution for?
  - Why did they adopt the AI solution?

Technological

- **Perceived direct benefits**
  - What are the direct expected benefits before the cooperation / adoption of the solution? What are the expectations toward your solution on beforehand?
  - Higher efficiency marketing management? Lower costs? Better data analysis? Increased revenue? Saved time? Gain more leads? (state these if the respondent asks for examples)
- **Perceived indirect benefits**
  - Looking at higher level, what are the indirect expected benefits your customers have?
  - Competitive advantage, customer satisfaction, business partner relationships (state these if the respondent asks for example)
  - Are there expected benefits just for the sake of having AI?
  - Increased valuation for investors or media attention? (state these if the respondent asks for examples)
  - In the sales process, do you communicate these benefits to customers?
- **Compatibility**
  - What digital solutions do your customers have in place before adopting the AI solution?
  - How did the adoption of AI fit in the previous system? Did they have to change a lot? How did the compatibility effect on the buying decision?
• Customer knowledge management (organizational factor, but for the sake of better interview flow asked here)
  o How do your customers collect and manage data?
  o Has that changed after adoption of your system?
  o What role do data and data management play in the adoption of AI solutions?

Organizational

• Intro
  o How is a typical buying process?
  o Who from the company approached you with the interest in your product? Or who did you approach? (IT / marketing department / top management)
  o Who tends to make the final decision? (department / title)
  o How much were you in communication with marketing and IT departments?

• Firm size
  o How do you think the firm size affect the adoption decision of an AI solution for marketing purposes?
  o It is said that Small Companies are more agile and flat, but large firms have greater access to IT and resources. What is your point of view as a practitioner?

• Existing technical skills among personnel
  o What is the usual level of IT knowledge in the marketing department of the customer who has adopted AI solution?
  o What is the AI knowledge within the IT department (if in contact)?
  o How does existing technical skills effect on adoption?

• Top management support
  o How technologically knowledgeable is customers’ top management?
  o How involved is top management in general?
  o Is there a difference in top management support between companies that adopt AI solutions and those that don’t?
  o How does top management support effect on adoption decision?

• Company culture
  o How would you describe the typical AI solution adopter in terms of their company culture?
  o What role does company culture play in the adoption of AI solutions?

• Financial resources
  o Typically, what does your solution cost?
  o How does customer feel about the price? Expensive, moderate, cheap?
  o What role does financial resources play in the adoption process?

Environmental

• Perceived competitive pressure
  o How does competition affect SMEs to adopt AI solution in marketing purposes?
  o How is the landscape among your customers’ industries? Has many adopted AI solution for marketing?
  o How does pressure from business partners affect the adoption decision?

• Pressure from customers
How do customers affect adoption process? (end-consumer in many cases, the customer of your customer)

**Overcoming challenges**

- What are the biggest challenges for your customers when it comes to adopting your solution? (of the ones we have discussed most likely)
- How do the customers tend to overcome them?

**Ethics**

- What ethical implications are there for your customer to consider when implementing the system?
- How important do you perceive the ethical aspect?
Appendix 2: Interview Structure - Adopters

Background

- **Firm related**
  - What does your company do? Industry?
  - What is the number of employees? Revenue?

- **Person related**
  - What do you do within the company? Title?
  - Past experience, what have you done before and how long have you been working at this company?
  - What is your experience within AI / marketing / other technology?

- **General questions about the AI marketing solution**
  - What type of AI solution do you use for marketing purposes?
  - Why did you decide to start using AI solutions in marketing? When did you implement it?
  - Do you develop the system in-house or do you outsource it?

- **Customer related**
  - Who are your typical customers? In terms of firm size, industry?
  - Why did you adopt the AI solution?

Technological

- **Perceived direct benefits**
  - What were the direct expected benefits before the cooperation / adoption of the solution?
  - Higher efficiency marketing management? Lower costs? Better data analysis? Increased revenue? Saved time? Gain more leads? (state these if the respondent asks for examples)

- **Perceived indirect benefits**
  - Looking at higher level, what were the indirect expected benefits you had?
  - Competitive advantage, customer satisfaction, business partner relationships (state these if the respondent asks for example)
  - Were there expected benefits just for the sake of having AI?
  - Increased valuation for investors or media attention? (state these if the respondent asks for examples)

- **Compatibility**
  - What marketing solutions did you have in place before adopting the AI solution?
  - How did the adoption of AI fit in the previous system? Did you have to change a lot? How did the compatibility effect on the buying decision?

- **Customer knowledge management (organizational factor but for the sake of better interview flow asked here)**
  - How do you collect and manage data?
  - Has that changed after the adoption of the system?
  - What role did data and data management play in the adoption of AI solutions?
Organizational

- **Intro**
  - How is typical buying process?
  - How did the decision-making process go by? Who brought the idea to the company’s attention? (IT / marketing department / top management)
  - Who made the final decision?

- **Firm size**
  - How do you think the firm size affected the adoption decision of an AI solution for marketing purposes?
  - It is said that Small Companies are more agile and flat, but large firms have greater access to IT and resources. What is your point of view as a practitioner?

- **Existing technical skills among personnel**
  - What is the level of IT knowledge in the marketing department?
  - What is the relationship between marketing and IT department?
  - What is the AI knowledge within the IT department (if in contact)?
  - How did existing technical skills effect on adoption?
  - Did you have to hire new employees with expertise in AI?

- **Top management support**
  - How technologically knowledgeable is your top management?
  - How involved was the top management in adoption?
  - How did top management support effect on adoption decision?

- **Company culture**
  - How would you describe your company culture?
  - What role did company culture play in the adoption of AI solutions?

- **Financial resources**
  - How much money have you invested in the system?
  - Was the adoption of idea a great financial investment?
  - How did you finance the adoption? Did you have to cut expenses on other stuff?
  - What role did financial resources play in the adoption process?

Environmental

- **Perceived competitive pressure**
  - How did your competitors affect the adoption?
  - How is the landscape among your industry? Has many adopted AI solution for marketing?
  - How did business partners effect on the adoption?

- **Pressure from customers**
  - How did your customers affect adoption process? (end-consumer in many cases)

Overcoming challenges

- What were the biggest challenges when adopting the AI solution? (of the ones we have discussed most likely)
- How did you overcome them?
Ethics

- What ethical implications were there to consider when implementing the system?
- How important do you perceive the ethical aspect?
Appendix 3: Interview Structure - Non-Adopters

Background

- **Firm related**
  - What does your company do? Industry?
  - What is the number of employees? Revenue?

- **Person related**
  - What do you do within the company? Title?
  - Past experience, what have you done before and how long have you been working at this company?
  - What is your experience within AI / marketing / other technology?

- **General questions about the AI marketing solution**
  - What type of AI solution have you planned to adopt?
  - Have you planned to develop the system in-house or outsource it?
  - Why haven’t you adopted an AI solution yet?
  - Which are your main organizational priorities now? (instead of adopting AI)
  - When would you estimate you will adopt AI?

- **Customer related**
  - Who are your customers? Demographics etc.
  - Why did you adopt the AI solution?

Technological

- **Perceived direct benefits**
  - What are the direct expected benefits for adoption of AI solution into marketing?
  - Higher efficiency marketing management? Lower costs? Better data analysis? Increased revenue? Saved time? Gain more leads? (state these if the respondent asks for examples)

- **Perceived indirect benefits**
  - Looking at higher level, what are the indirect expected benefits you have?
  - Competitive advantage, customer satisfaction, business partner relationships (state these if the respondent asks for example)
  - Are there expected benefits just for the sake of having AI?
  - Increased valuation for investors or media attention? (state these if the respondent asks for examples)

- **Compatibility**
  - What marketing solutions do you currently have in place?
  - How would you estimate the AI system to fit with your current systems? Would you have to change a lot?
  - How would the compatibility effect on the buying decision?

- **Customer knowledge management (organizational factor but for the sake of better interview flow asked here)**
  - How do you collect and manage data?
  - How important are data and data management play in the adoption of AI solutions?
Organizational

- **Intro**
  - Who brought the idea to the company’s attention? (IT / marketing department / top management)
  - Who would make the final decision?

- **Firm size**
  - What impact do you think firm size has on the adoption decision of an AI system for marketing purposes?
  - It is said that Small Companies are more agile and flat, but large firms have greater access to IT and resources. What is your point of view as a practitioner?

- **Existing technical skills among personnel**
  - What is the level of IT knowledge in your marketing department?
  - What is the relationship between marketing and IT department?
  - What is the AI knowledge within the IT department (if in contact)?
  - How important do you perceive existing technical skills in adoption of AI solutions?
  - Would you have to hire new employees with expertise in AI?

- **Top management support**
  - How technologically knowledgeable is your top management?
  - How involved is your top management in the planning of AI systems?
  - How do top management support effect on adoption?

- **Company culture**
  - How would you describe your company culture?
  - What role does company culture play in the adoption of AI solutions?

- **Financial resources**
  - How much money are you ready to invest in the system?
  - Would the adoption be a great financial investment?
  - How would you finance the adoption? Would you have to cut expenses on other stuff?
  - What role do financial resources play in the adoption process?

Environmental

- **Perceived competitive pressure**
  - How do your competitors affect the adoption?
  - How is the landscape among your industry? Has many adopted AI solution for marketing?
  - How do business partners affect on the adoption?

- **Pressure from customers**
  - How do your customers affect adoption process? (end-consumer in many cases)

Overcoming challenges

- What are the biggest challenges when adopting the AI solution? (of the ones we have discussed most likely)
- How are you planning to overcome them?
Ethics

- What ethical implications are there to consider when adopting the system?
- How important do you perceive the ethical aspect?
Appendix 4: Abbreviations

AI: Artificial Intelligence
MMSS: Marketing Management Support Systems
ES: Expert System
PM: Predictive Modelling
CBR: Case Based Reasoning
CRM: Customer Relationship Management

TOE: Technology - Organization - Environment Framework

CMO: Chief Marketing Officer
CTO: Chief Technology Officer
CBO: Chief Business Officer

GDPR: General Data Protection Regulation
SME: Small and medium-sized enterprise
ROI: Return-on-Investment