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Ulrika Koivuniemi 2020

**DATA-DRIVEN MARKETING – BUSINESS MODEL INNOVATION FROM RESOURCE-  
BASED THEORY VIEW**

Master's Thesis

1<sup>st</sup> Supervisor: Professor Anssi Tarkiainen

2<sup>nd</sup> Supervisor: Associate Professor Joel Mero

## ABSTRACT

<b>Author:</b>	Ulrika Koivuniemi
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In literature, marketing itself is widely researched, thus data-driven marketing is a relatively new phenomenon. Earlier scientific research agrees on the benefits and importance of data and fact-based decision making in marketing. Data-driven marketing has become one of the key factors of competitive advantage and even business survival. However, a distinct gap exists on how companies develop data-driven capabilities. Hence, this study offers insight on a relevant research area focusing on business model innovation from a resource-based view in the context of data-driven marketing. This thesis examines the resources and capabilities required for successful implementation and identifies the primary opportunities and challenges of applying data-marketing.

The empirical section is based on multiple case-studies. It includes one large Finnish media corporation and its three marketing subsidiaries. The data is collected from individual semi-structured interviews with top managers and directors. The results indicate that data-driven marketing is perceived as a customer-centric approach which utilizes the collected data in marketing by informing and optimizing marketing activities. Human and technological resources were identified as the primary resources in applying data-driven approach as human knowledge, analytical and technological capabilities combined with marketing capabilities are viewed most essential. Data-marketing offers increased customer understanding and efficiency and enhanced decision making. However, the main challenges are lack of resources and capabilities, culture shift and data overload.

## TIIVISTELMÄ

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Kirjallisuudessa markkinointia on tutkittu laajasti, mutta data pohjainen markkinointi on suhteellisen uusi ilmiö. Aikaisempi tieteellinen tutkimus on yhdenmielinen datan ja faktapohjaisen päätöksenteon hyödyistä ja merkityksestä markkinoinnissa. Datamarkkinoinnista on tullut yksi kilpailuedun ja liiketoiminnan säilymisen avaintekijöistä. On kuitenkin vielä epäselvää, kuinka yritykset kehittävät datamarkkinointi-kyvykkyksiä ja ominaisuuksia. Tutkimuksen tarkoituksena on lisätä ymmärrystä relevantista tutkimusaiheesta, joka keskittyy liiketoimintamalli-innovaatioon resurssiperusteisesta näkökulmasta datamarkkinoinnin kontekstissa. Tutkimus perehtyy vaadittaviin resursseihin ja kyvykkyysiin, joita onnistunut implementointi edellyttää sekä tunnistaa datamarkkinoinnin mahdollisuudet ja haasteet yrityksen näkökulmasta.

Empiria osuus pohjautuu useisiin tapaustutkimuksiin, sisältäen yhden ison suomalaisen mediakonsernin ja sen kolme markkinointi tytäryhtiötä. Aineisto on kerätty puolistrukturoituina yksilöhaastatteluina johtoryhmätasolla. Tulokset osoittavat, että datamarkkinointi nähdään asiakaskeskeisenä markkinointina, joka hyödyntää kerättyä markkinointi dataa, informoi ja optimoi markkinointitoimenpiteitä. Henkilö- ja tekniset resurssit nähdään tärkeimpinä resursseina datamarkkinoinnin kehittämisessä. Tärkeimpinä kyvykkyyksinä pidettiin teknologia, data ja analyyttisiä kyvykkyksiä yhdistettynä markkinointikyvykkyysiin. Datamarkkinointi kasvattaa asiakasymmärrystä ja tehokkuutta sekä tehostaa päätöksentekoa. Suurimpia haasteita ovat kuitenkin resurssien ja kyvykkyyksien puute, kulttuurin datakulttuurin kehittäminen sekä datan ylikuormitus.

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Helsinki, May 2020

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## 1. INTRODUCTION

The world has faced a drastic shift during the last decades due to digitalization. We live in a digital era where data is everywhere and playing an increasing role in companies. (Kumar 2015) Today marketing is seen as the most critical element in this millennium in terms of business survival. Yet, data for marketing purposes has been used for long but, due to digitalization, it has become even more important for most businesses (Wedel & Kannan 2016). Data may offer a vast amount of business development and marketing opportunities as well as challenges for companies. According to Kuckuk (2011) and Mroz (1998) consumers are becoming more influential in the hyper-digital world with the increasing use of digital technologies and the Internet. Digitalization, data and the rapid development of technologies has revolutionized marketing and transformed the way companies operate in order to meet the changing needs of customers (Azadi & Rahimxadeh 2012; Leeflang, Verhoef, Dahlström, & Freundt 2014). Therefore, companies must become data-oriented, aim for efficiency and effectiveness in order to survive in the increasingly competitive markets today. Thanks to digital technology development in data analytics it is possible for majority of companies to become data-driven, yet many companies fail to benefit from big data (Erevelles, Fukawa & Swayne 2016).

### 1.1. Research background

Earlier studies agree on the benefits and importance of data and fact-based decision making in marketing and overall business. Braverman (2015) highlights the high-level findings from the “Global Review of Data-driven Marketing and Advertising” published by GlobalDMA and Winterberry group in 2014, Wedel & Kannan (2016) and Davenport, Harris, De Long & Jacobson (2001) agree that the message is loud and clear; “*data matters since data is digital and digital is data*”. Fundamentally, data is seen as a tool for targeted messaging and content creation, enabling insight into prospects and customers. Yet, Braverman (2015) views data as much more, learning and understanding the changing markets, uniting the hole between ‘traditional’ and ‘digital’ marketing mix, which has been evolving to a more customer-centric approach (Grönroos 2006; Harvey, Lusch & Cavarkapa 1996) in marketing means used today.

Customer data is a highly important asset for companies (Erevelles et al. 2006) as it represents the relationship with customers and potential customers. The relationship is to be cherished and safeguarded. (Braverman 2015) Also Hasan (2011) and Kannan & Li (2017) view digital marketing as a process of communication and value creation aiming at customer acquisition

and retention by building relationships resulting in business growth. Kannan and Li (2017) refine the value creation process which is enabled by a digital environment. Therefore, data-driven marketing is the means of utilizing these assets; using various delivery channels and creative content that is relevant to each consumer, aiming for establishing and growing relationships that are mutually beneficial for the marketer as well as for the consumer. Sharma & Sheth (2002) emphasize the importance of customer-centricity in terms of success if a company is able to rapidly adapt its supply to meet demand.

Research done by Kannan & Li (2017) and Royle & Laing (2014) reveal that digital platforms have changed customer behavior and has increasingly impacted marketing functions and activities in companies today. Kumar (2015) agrees that marketing functions are constantly evolving and developing towards integrated approach aiming at efficiency and effectiveness. Therefore, the need in companies for more effective marketing have increased the demand to utilize data more effectively in the marketing department. (Wedel & Kannan, 2016) Sharma and Sheth (2004) see that data analytics are guiding companies' operations today, aiming at maximizing performance and effectiveness of marketing efforts. Also, Erevelles et al. (2016) view data utilization in marketing functions as the primary source for competitive advantage.

According to Kumar, Chattaraman, Neghina, Skiera, Aksoy, Buoye, Henseler (2013) data-driven marketing requires a fact-based view from companies in decision making. Moreover, data-driven marketing needs to be integrated as part of company culture through continuous learning and investments in digital analytic. The data collected from customers is used to examine and understand customer behavior, needs and responses to digital marketing and to optimize the marketing activities to make marketing more efficient and fact based. (Järvinen and Karjaluo 2015)

## **1.2 Research gap**

In literature, marketing itself is widely researched, yet data-driven marketing is a relatively new phenomenon and there is a clear need for more studies. Ongoing digitization has resulted in vast streams of data, forcing businesses to become even more data-driven (SaS 2018, 2). Furthermore data-driven marketing has become one of the key factors of competitive advantage

and even business survival. New business opportunities and models have attracted the interest of researchers. Hagberg, Sundstrom & Egels-Zanden (2016) and Taylor & Strutton (2010) believe that data-driven marketing is required to succeed in the markets today. Therefore, there is an increasing need for more studies on the required resources and capabilities for companies to develop data-driven marketing models and becoming data-oriented. Earlier literature agrees on the benefits of data-driven organizations, yet there are business challenges to overcome, which makes this research topic interesting and relevant.

The benefits of data-driven marketing, fact-based decision-making and utilization of data to the full extent are very well acknowledged and indisputable. Despite all the benefits data has to offer, there is a clear research gap on how companies become data-driven, what are the resources and capabilities required to develop data-based marketing models. Also, how to utilize data to its full extent and how to turn data into knowledge leading to positive results (Davenport et al. 2001). Due to the vast amount of data companies collect, marketers face the challenge of information overload (Erevelles et al. 2016). As Davenport et al. (2001) pointed out, the information overload is beyond the capacity for firms to fully understand and act upon the data. Arguing that data is too rarely turned into meaningful insight and knowledge that can be utilized in business and marketing efforts. Kumar et al. (2013) claim, that 39% of companies collecting large amounts of data are not able to turn data into actionable insights. The explosion of data from numerous digital sources is challenging marketing professionals and marketing capabilities today (Kumar et al. 2013; Erevelles et al.2016).

Kumar et al. (2013) acknowledge there is a need for future research on revealing opportunities how to utilize data more holistically and to explore the effects on marketing operations. Järvinen (2016) agrees that future studies have to deepen insight into the skills and assets required in developing successful data-driven marketing models. Companies face challenges in leadership, talent management, technology and decision making and company culture (McAfee & Brynjolfsson 2012). It is inevitable companies lack resources thus they mainly lack capabilities in developing data-driven marketing processes. Wedel and Kannan (2016) acknowledge that companies have invested vast amounts of resources in collecting and storing data yet lack analytic capabilities.

### 1.3. Research Questions and Objectives of the study

The main goal of this study is to deepen understanding and knowledge on data-driven marketing and to offer comprehensive insight of how digitalization has forced marketing departments to become more data-oriented. To reach this goal, the research describes why and how companies innovate and develop data-driven marketing models by understanding the key resources and capabilities required from a company in data-driven business model innovation in the executive level. Furthermore, to identify the capabilities enabling business model innovation and how these capabilities are developed. In addition, this study aims to understand the opportunities and challenges in applying data-driven marketing.

Therefore, the managerial aim is to provide valuable knowledge for companies, aiming to apply data-driven approach in marketing. The scientific goal is to provide a thorough and in-depth understanding of data-driven marketing from a resource-based view identifying the required capabilities and resources in business model innovation in order to develop and apply data-orientation in marketing. Also, to identify new opportunities in developing data-driven marketing models as to expand knowledge on how to turn the data into actionable insight. All sub-research questions break the main problem into smaller parts to help gather and analyze existing literature and to fulfil the answer of the main research question.

The main research question of this thesis is:

- How business model innovation is done in the context of data-marketing?

The main research question is divided into four sub-questions that are:

- *What is data-driven marketing?*
- *What are the required resources and capabilities and how can they be developed?*
- *How companies apply data-driven marketing models?*
- *What are the opportunities and challenges in applying data-driven marketing?*

In today's digital world data is everywhere and there is a vast amount of data available. Therefore, it is crucial to understand the opportunities in developing and applying data-orientation in marketing activities to turn data into actionable insight that will eventually

enhance a company's performance. The theoretical section provides a more abstract overview of the extant literature on data-marketing, RBT and BMI, as the empirical section describes in more detail on a practical level.

#### **1.4. Literature review**

The goal of literature review is to provide a brief overview of the existing literature on the primary topics of this study. This section summarizes earlier discussion on business model innovation theories through resource-based theory in the context of data-driven marketing.

Data-driven marketing has become a key to competitive advantage, where old models are no longer seen valid. Marketing is viewed as a function of decision-making areas aiming to create sales and customer satisfaction according to the goals of an organization (Hasan 2011). The American Marketing Association defines marketing as an organizational function, a set of processes creating communication, customer value and managing customer relationships in a way that benefits both the organization and stakeholders (Grönroos 2006). Sharma and Sheth (2004) view data-driven marketing as utilization of the digital environment for information, communication and business. According to Grönroos (2006) and Erevelles et al. (2016) marketing as a phenomenon has changed a lot over the last years. This in turn creates a lot of opportunities and challenges as the magnitude of diverse, rich and rapid pace of data generated is transforming marketing decision-making (Erevelles et al. 2016).

Digitalization and the rapid development of technologies have revolutionized marketing models (Azadi & Rahimxadeh 2012; Johnson, Muzellec, Sihi & Zahay 2019), which are to be modified to meet the novel demands (Baltes 2016; Jackson & Ahuja 2016). The utilization of data in marketing activities is not a new phenomenon, but the digital era has made it a necessary one. As Kumar et al. (2013) point out, academics claim the use of systems and models have that been assisting marketeers in decision-making since mid the 1900's when Kotler started discussion on "*marketing nerve center*" aiming to increase accuracy, timeliness and comprehensiveness of executive marketing information services.

Today, marketers are eager to acquire knowledge on big data and data-driven marketing. Research done by Rogers and Sexton (2012) and Kumar et al. (2013) claim that 91% of marketing leaders and 100% of Chief Marketing Officers believe data-driven marketing to be

the cornerstone of marketing success and companies need to apply data-marketing. According to Jackson and Ahuja (2016), in a constantly changing and evolving business environment, companies cannot be indifferent, but they must understand how data-marketing tools add mutual value to both customers and company.

No dispute, companies are steering attention towards data-driven marketing, allocating finances into digital marketing and developing essential skill sets. Companies are seeking for solutions to meet the challenges of big data and are primarily engaging in developing data-driven marketing models and analytics (Strong et al. 1997). On the contrary, for decades businesses have collected more data they can use or even know how to use (Erevelles et al. 2016; Johnson et al. 2019; Van Bruggen, Smidts, & Wierenga 2001). Therefore, many companies fail to benefit from it. According to numerous authors (Erevelles et al. 2016; Kumar et al.2013; Wedel & Kannan 2016), companies need to allocate applicable physical, human and organizational capital resources in order to exploit big data's benefits. Data-driven marketing requires companies to adapt data-orientation and fact-based decision-making as a part of organizational culture and share data within an organization (Kumar et al.2013).

Numerous marketing scholars and researchers in the recent years have utilized *resource-based theory* (RBT) and according to several authors (Everalles et al. 2016; Kozlenkova, Samaha & Palmatier 2013; Lu & Liu 2013; Seddon 2014) RBT has become one of the most influential and cited theories in marketing research. Kozlenkova et al. (2013) highlight the use of resource-based theory in marketing studies which has grown over 500% during the past decade. Also, Lu and Liu (2013) acknowledge the high number on RTB studies done. Suggesting RBT has reached its maturity as a theory, but the number of RBT applications is continuously increasing. Therefore, suggesting the importance of the framework is to explain internal sources of companies' competitive advantages (Seddon 2014) and to predict performance outcomes (Kozlenkova et al. 2013). RBT proposes that companies must obtain and control valuable, rare, inimitable and organizational (VIRO) resources and capabilities to gain sustainable competitive advantage. RBT offers a valuable explanation on big data's and data-orientation's impacts on marketing and business performance today (Everalles et al. 2016).

Kull, Mena and Korschun (2016) broadly define company resources as any strengths or weaknesses of a certain company. More specifically, resources can be viewed as companies' assets and capabilities which enable the development of core competencies. Previous literature has no clear policy on the RBT if resources and capabilities should be viewed as separate or analyzing capabilities as subsets of companies' resources (Seddon 2014). In this study resources and capabilities are viewed as separate and assets are used as the general term. Rahman, Rodriguez-Serrane and Lambikin (2018) divide companies' resources as tangible, intangible and complementary. Capabilities can generally be viewed as information-based and they are either tangible or intangible processes which permits companies to exploit its other resources in a more productive and efficient way (Kozlenkova et al. 2013). Trainor, Rapp, Beitelspacher, Schillewaert (2011) define capabilities as a set of skills and resources easing the execution of business processes which contribute to competitive advantage. Erevelles et al. (2016) goes further and divides capabilities to dynamic and adaptive capabilities.

Kozlenkova et al (2014) claim RBT can provide both theoretical and empirical impacts of multiple market-based resources on performance in various marketing contexts. The resource-based theory is often applied in three areas of marketing; marketing strategy, international marketing and marketing innovation. This study focuses on business model innovation through RBT as Seddon (2014) suggests that business models are both resources and capabilities. Seddon (2014) provides a causal path of utilizing RBT with business innovation; management gains insight on how data-driven marketing could be used to generate competitive advantage leading to system development and innovation and lastly, observing the competitive advantage.

According to Guo, Zhao and Tang (2013), current literature views business model innovation as an effective vehicle for organizational transformation and renewal. Furthermore, some researchers suggest that business model innovation can be done by changing single or more than one component of a companies' business model (Foss & Saebi 2017). Business model innovation can be defined as creating or reinventing existing business models through new value propositions, designing new value-creation systems and building value-capturing mechanisms (Guo et al. 2013). Companies introduce new ideas and technologies through business models as business models demonstrate how companies work (Sorescu 2017), create, deliver, and capture value. Furthermore, business models describe how companies generate value by identifying key resources, capabilities and processes. (Guo et al. 2013).

Business model and business model innovation are today accepted terms in management literature even though the concepts have not yet fully been integrated into other aspects of management theories such as marketing and information management (Parnell et al. 2017). Yet, business model innovation is a rapidly rising significant phenomenon complementing product (Guo et al. 2013; Snihur & Wiklund 2019), process and organizational innovation theories (Frankenberger, Weiblen, Csik, & Gassmann 2013). However, Snihur and Wiklund (2019) suggest innovation to be recognized as a process gathering various innovation types; product, process and a newly recognized innovation type – business innovation. Furthermore, their research suggests business innovation can be viewed separately or concurrently.

Parnell et al. (2017) argue the importance of business model innovation as their research suggest innovation at business model level can improve companies' overall performance and competitive advantage. Translating to a positive correlation between business model innovation and organizational success. According to Trabucchi and Buganza (2019) the role of big data in innovations may cover product, architecture, modular, process and business innovation. However, Frankenberger et al. (2013) acknowledge the debate on the prevalent components of a business model. Srivardhana and Pawlowski (2007) define business processes as a set of functions executed to accomplish a defined business outcome. Furthermore, process innovation aims at improving companies' processes.

Within companies, managerial perceptions and processes are changing as data-driven decision-making strategies are entering. Resulting in changes in organizational culture, leadership, management practices as well as developing new business models (Sheng, Amankwah-Amoah & Wang (2017). Sorescu (2017) and Trabucchi & Buganza (2019) identify big data as a source of competitive advantage, a catalyst for successful business models. The IBM innovation survey reveals that companies exploiting big data and analytics in innovation are by 36% more likely to defeat competitors in revenue growth and operating efficiency.

## **1.5. Theoretical framework and key definitions**

The theoretical framework presented in figure 1. summarizes the key concepts of this study and demonstrates their relations. The framework presents the theoretical perspectives of this thesis. The key concepts in this study are data-driven marketing, data-marketing, data-orientation,

resources, capabilities, dynamic capabilities, adaptive capabilities, business model innovation and business process innovation. In the next sub-chapter the key concepts are briefly defined and will be discussed in more detail in the theoretical section. The framework is based on resource-based and business model innovation theories in the context of data-marketing. It explains how the literature on data-driven marketing, company assets and business model innovation are developed throughout this thesis. Figure 1. clarifies and exemplifies how data-driven marketing models are developed and applied within a corporation.

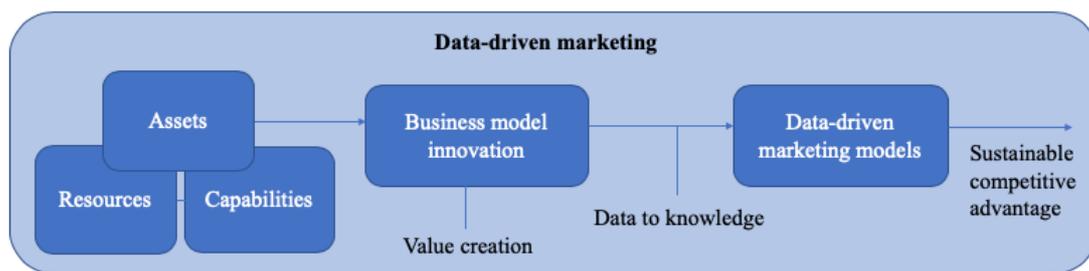


Figure 1. Theoretical Framework

The theoretical section first introduces the concept of data-driven marketing by defining the concept and explaining its functions and features. The literature of data-driven marketing is based on the current knowledge on the topic. The required company resources and capabilities in business model innovation are described using resource-based view theory and business innovation theories. The theoretical section mainly focuses on explaining the beginning of the framework whereas the empirical section describes the right side of the framework in more detail.

**Data-driven marketing:** Data-driven marketing is the utilization of digital environment for information, communication and business (Sharma & Sheth 2004). Kumar et al. (2013) define data-driven marketing as the way of exploiting data in marketing by optimizing the ways marketing activities are conducted. The goal is to foster a mutually beneficial relationship both in terms of company and customer. Strong et al. (1997) suggest data-driven marketing to be viewed as information technology enabled marketing which manages big data. Aiming at more efficient and effective marketing operations, data-driven marketing consists of data collection, analyzing and data utilization (Erevelles et al. 2016; Wedel & Kannan 2016).

**Big data:** The massive developments and advancements in technologies have resulted data to become more complex (Erevelles et al 2013). The three dimensions volume, velocity and variety are commonly (Gandomi & Murtaza 2014; Erevelles et al. 201; Johnson, Friend & Lee 2017) referred to the definition of big data. Volume refers to the magnitude of data available while velocity defines the speed at which companies process and analyze data, whereas variety measures the richness of data. The amount of rich and diverse data that is constantly generated in a rapid pace can be either structured or unstructured data (Tarabucchi et al. 2019).

**Resources:** Resources can broadly be defined as company's any strengths or weaknesses (Kull, Mena & Korschun 2016). Resources can be viewed as companies' assets and capabilities enabling the development of core competencies. Rahman et al. (2018) divide companies' resources as tangible, intangible and complementary. Barnery 1991 and Barney & Hesterly 2012 further categorize company resources: physical, human, organizational and financial.

**Capability:** Capability is commonly defined as information-based tangible or intangible process which permits companies to exploit its other resources in a more productive and efficient way (Kozlenkova et al. 2013). Moreover, Barnery and Hesterly (2012) view capabilities as assets uniting resources for companies to fully benefit from those resources. Erevelles et al. (2016) divides capabilities to dynamic and adaptive capabilities.

**Dynamic capability:** Dynamic capabilities enables companies to create, deploy and protect intangible assets supporting superior business (Seddon 2014). According to Day (2011) and Orlandi (2016), dynamic capabilities are viewed from an inside-out perspective. Explaining, how companies utilize existing assets to seize and respond to opportunities and threats from the external environment. Capabilities that can create, extend, upgrade, protect and maintain the companies' unique asset base relevant that is relevant to the constantly changing environment (Kozlenkova et al. 2013).

**Adaptive capability:** Adaptive capability has an outside-in perspective, meaning the company proactively aims to respond to the external environment changes and challenges by adjusting operations according to the insights of markets (Day 2011). Adaptive capabilities according to Kozlenkova et al. (2013) allow companies to anticipate trends even before they are fully apparent. Subsequently, companies are able to adapt operations in effective ways.

**Business model:** New ideas and technologies are introduced through business models as they demonstrate how companies do business (Sorescu 2017), create, deliver, and capture value (Guo et al. 2013). Nonetheless, the concept and definition and its components vary greatly. Scholars have defined business model broadly as companies' arrangement for exploiting opportunities. (Guo et al. 2013). Business models are used to demonstrate how companies generate value by identifying key resources, capabilities and processes.

**Business model innovation:** BMI can be defined as creating or reinventing existing business models through novel value propositions, designing new value-creation systems and building value-capturing mechanisms (Guo et al. 2013). Sinhur and Wiklund (2019) describe it as an activity system, or something that is new to the industry where the company competes. Guo et al. (2013) view business model innovation as an effective vehicle for organizational transformation and renewal. Furthermore, business model innovation can be done by changing single or more than one component of a companies' business model (Foss & Saebi 2017).

**Business process innovation:** Business process innovation is a set of functions executed to accomplish a defined business outcome (Srivardhana and Pawlowski 2007), aiming at improving companies' processes (Srivardhana & Pawlowski 2007) such as work routines and information flow (Srivardhana & Pawlowski 2007). Business process innovation covers the new elements that are introduced into companies' operations. Process innovation commonly aims at cost savings rather than attracting new customers and partners (Sinhur & Wiklund 2019).

## 1.6. Delimitations

There are certain delimitations that have an effect on the adequacy and applicability of this thesis. This study is conducted as a case study, focusing on a Finnish corporation, currently developing and applying new data-marketing models. This study solely includes the 3 marketing subsidiaries, leaving all other companies within the corporation outside of the analysis. The scope includes few smaller and one large B2B and B2C marketing and media companies having different backgrounds and needs for data-marketing models. The literature does not focus on companies in a particular industry or size and the aim is to provide similarities and differences in resources, capabilities, data-orientation and business innovation in the context of data-driven marketing to provide directions for future research. The purpose is to

gain insight into how data-driven marketing models are applied in business and marketing operations and how the resources are allocated.

Additionally, this study concentrates on the executive level in terms of business innovation, decision making and resource allocation. As Guo et al. (2013) highlight the essential role of top managers capabilities in business innovation. Hence, this study assumes a strategic perspective on the topic and, therefore, operational side is not included in the analysis. The sample is selected within management and marketing department and according to their strategic position. Furthermore, business model innovation and the required resources and capabilities are solely examined from the marketing point of view, leaving other departments and functions aside in the theoretical section. Though, literature does acknowledge the strong involvement of other departments in the innovation as well as utilization process of data-driven marketing models.

This study also takes a broader position to deepen insight into the topic from a data-marketing context. Data-driven marketing will be covered on a general level without taking a focus on any specific functions. Therefore, all other marketing activities, means and functions are left outside of this study. Even though literature is scattered on the numerous factors affecting business model and process innovation in the context of data-driven marketing, this study is limited to cover the resource and capability factors affecting business model innovation. Consumers can also benefit from companies utilizing data-marketing, but this study does not include consumer's point of view. The delimitations mentioned and the small sample size, it is evident that the results cannot be generalized, but to provide directions for future research.

### **1.7. Research methodology**

The main objective is to deepen knowledge on data-driven marketing and understand the required capabilities in business model innovation to apply data-orientation in marketing. Based on the nature of this study, qualitative research method was chosen. The qualitative method supports the goals of this research allowing descriptive and in-depth analysis on the topic. This study's theoretical section is carried out with secondary literature research based on extant literature as the empirical section is conducted as an exploratory research using individual interviews as a data collection method. Interviews are the primary data of the research.

Exploratory research focuses on deepening understanding and knowledge of a phenomenon, identifying a detailed structure, causal relationship and reasoning behind something that is not yet entirely understood (Metsämuuroinen, 2011, 220). The context of this research is to find out the needed capabilities to develop and apply data-driven marketing and to understand the relationships between assets and successful business development. Saunders, Lewis and Thornhill (2012, 171) find exploratory research extremely useful when the goal is to clarify and understand a certain problem or phenomenon, having the advantage of being flexible and adaptable to change.

Data can be collected through various ways; observation, analyzing documents and texts, interviews and recordings (Silverman, 2001, 11). Non-standardized data collection method is used since according to Saunders et al. (2012, 171) it enables questions and procedures to modify and emerge during the process. Empirical material is collected by interviewing experts in the focus group or individuals' interviews. According to Hirsjärvi, Remes & Sajavaara (2009) interviews consist of systematic data collection aiming to gather reliable and valid information.

Target corporation company interviews are conducted using semi-structured interviews as the interview topics are pre-selected but accurate format or order of the questions are not defined (Metsämuuroinen, 2011, 247). According to Saunders et al. (2012, 375) the aim is to gain an in-depth and coherent insight of a certain phenomenon. Semi-structured interviews proceed based on pre-selected themes and questions and ensure all topics are covered. Yet, the method enables specifying and deepening questions according along the interview. (Tuomi & Sarajärvi 2018, 65) Interviewees are expected to possess good knowledge on data-driven marketing as they occupy a manager and director positions in the company.

Qualitative research can be analyzed using various analysis techniques in business related case studies. (Alasuutari 2011, 26; Eskola & Suoranta 1998, 116). Case study analysis begins from within-case analysis, which is continued by cross-case analysis. For this study thematic analysis method was chosen. According to Braun and Clarke (2006), thematic analysis consists of six phases; familiarizing data, initial code generation, searching for themes, reviewing themes, defining and naming themes, and lastly creating a final account on the findings of the study.

## **1.8 Structure of the study**

This section presents the structure of this study. This study is broadly divided into two parts: theoretical and empirical part. Theoretical section is presented in chapters two and three as sections four and five cover the empirical part of this study. In chapter six discussion and conclusions are presented which summarizes the study. Each part is divided into sub-chapters.

As presented, chapter one introduces the topic, research background, research questions, and literature review. Moreover, it explains why this study was conducted and what are the aims for this thesis. Furthermore, it covers the theoretical background of this study providing definitions of the main concepts used. Also, the delimitations and research methodology used in this thesis.

Theoretical chapters discuss existing literature on data-driven marketing. Chapter two presents relevant concepts, theories, features and perceptions in the context of this study, providing basis for chapter three. The next chapter analyzes and applies the literature on resource-based and business model innovation theories in the context of data-marketing. It Examines the resources and capabilities required in business model innovation to apply data-driven marketing.

The following chapters four and five form the empirical part. Chapter four introduces the qualitative research methodology and research strategy, providing an overview of how this study was conducted, in terms of research method, context, data collection and data analysis. Chapter five presents the case companies and the findings and results. Chapter six summarizes the results and explains the limitations of this study, managerial implications and provides future research directions.

## **2. DATA-DRIVEN MARKETING**

We live in a hyper-digital world where marketing environment is more complex than ever (Biegel 2009). According to Biegel (2009), Kuckuk (2011) and Mroz (1998) consumers are more civilized and influential due to the increasing use of digital technologies and internet. This in turn, has had a significant impact on marketing activities. Hence, marketing is considered as the most critical business element in this millennium (Kumar 2015). The rapid transformations in consumer behaviors, development of new communication and distribution channels (Biegel 2009), and increasing competitive markets (Quinn, Dibb, Simkin, Canhoto & Analogbei 2016) are challenging marketers to utilize data more efficiently (Davenport et al. 2001; van Bruggen et al. 2001). Marketers face high internal demands in terms of accountability (Kozlenkova et al. 2014; Kumar et al. 2013), with fewer resources and more capabilities required. The internal and external changes are forcing marketers to rely more on data and marketing analytics to increase the efficiency and effectiveness of marketing and overall business.

The extant literature on marketing research defines marketing as extensive concept for which there is no generally accepted definition. Mroz (2011) argues that marketing has as many definitions as how many people are asked to define the concept. Grönroos (1994 & 2006) views marketing as a complex function. Moreover, marketing is the process of designing, implementing ideas, goods, services, including pricing, promotion and distribution aiming to generate exchange and consumer satisfaction to fulfil organizational goals. Fundamentally marketing can be viewed as a process that identifies, satisfies and creates value which in return benefits both customers and companies. An integrated marketing process identifies and combines key marketing functions into a unified process, where each step consists of smaller aspects of marketing functions. (Morz 1998) Baltes (2016) state, traditional marketing models are transforming to respond to the needs of digitalization where the digital environment is seen as a tool that fundamentally changes companies' business models. Marketing models need to be developed to cope with the digital environment (Baltes 2016; Erevelles et al. 2016).

Kumar et al. (2013) define data-driven marketing as a way data is utilized in marketing by informing and optimizing the ways marketing activities are conducted. Data-driven marketing can also be viewed as information technology enabled marketing managing big data (Strong, Lee & Wang, 1997). Moreover, Johnson et al. (2019) define big data analytics as techniques

used to analyze large data sets to make useful inferences about consumers and competitors. Erevelles et al. (2016) justify the use of consumer data as it provides insight for marketers on customer behavior enabling to capture sustainable competitive advantage. The explosion of data from various digital sources (e.g. social media and social networks, online content such as websites and blogs, email-marketing, internet and mobile ads) in turn enable consumer data tracking (Kumar et al. 2013). Both Carnevali, Margulies & Sangster (2017) and Kumar et al. (2013) consider data-driven marketing to obtain a customer centric approach.

Johnson et al. (2019) research reveals that marketing managers consider data-driven marketing and big data analytics (BDA) as decision-making tools furthermore, as capabilities generating insight into product innovation, marketing strategy and brand building. Meanwhile, the data-driven decision-making is confronting decision-makers with the challenges to process and incorporate all data sets into the process (van Bryggen et al. 2001). The challenges in successful data-marketing implementation are attributed according to Johnson et al (2019) from data culture and integration of analysis and decision-making. Dowling (2002) claims that data-driven marketing rarely meets the ever-rising expectations in providing enough meaningful insight to create returns. van Bryggen et al. (2001) agree marketing data to come with both benefits and costs, offering more accurate decisions on the expense of requiring more cognitive effort.

Digital platforms have not only changed customer behavior but have also allowed companies to monitor marketing activities in a more cost-efficient way, supporting fact-based decision-making (Sharma & Sheth 2004). However, the process of converting data into actionable insight and competitive advantage is complex and many companies fail to do so (Erevelles et al. 2016). According to Orlandi (2016) the “*volume of business-related data is ever-increasing*” as the traditional marketing activities and communication have expanded due to digital platforms (Day 2011). Furthermore, the digital marketing channels and solutions provide data from various fragmented sources (Day 2011; Orlandi 2016) offering marketers access to knowledge, the possibility to base decisions on data and facts (Kumar et al 2013). Wedel and Kannan (2016) argue that data-driven approach in marketing provides companies insight into their marketing performance and the effectiveness of their marketing activities to optimize the return on investments (ROI) in a company.

The explosive growth of available data in the digital landscapes during the last two decades has resulted for firms to increasingly recognize the competitive advantages analytics can deliver, driving the development and deployment of data-driven marketing approach (Wedel & Kannan 2016). Kumar et al. (2013) add that the evolvement of technologies, data collection and storing has become easier and more affordable. Furthermore, the ever-advancing digital landscape has enabled organizations to assemble consumer data gaining a better understanding on product usage, purchasing decisions, service positioning and personalization opportunities.

Data has developed into the center of the marketing decision-making process. Shifting towards fact-based decision making, away from intuition and experience-based (Kumar et al. 2013; McAfee & Brynjolfsson 2012; Orlandi, 2016). Data-driven marketing encompasses big data environment and marketing analytics and the required skill sets are broad and deep (Johnson et al. 2019; Van Bruggen et al. 2001) as working progressively with statistics, econometrics, computer science and marketing. Companies face the challenge in developing understanding in all areas (Wedel & Kannan, 2016). According to Erevelles et al. (2016) companies fail to exploit the advantages from data-driven marketing due to unique resource requirements.

Sharma and Seth (2004) view marketing analytics guiding businesses to maximize performance and effectiveness of marketing efforts. Digital platforms enable companies to monitor the costs of each marketing activity supporting fact-based decision-making. Wedel and Kannan (2016) argue that marketing analytics have become the key factor in evaluating digital marketing tools. Marketing analytics consist of data collection, sorting and management as well as data analysis. Digital technologies facilitate tracking by producing vast amounts of data with tools to analyze the impact and effectiveness of marketing efforts (Quinn et al. 2016). However, marketing analytics and technologies itself are not enough (Davenport et al. 2001; Erevelles et al. 2013).

Davenport et al. (2001) point out the challenge in utilizing analytic technologies to the full extent. Companies invest large amounts into digital technologies, thus lack analytical capabilities. Companies must create broad human and technical capabilities in order to convert data into knowledge and to capture business results (Davenport et al. 2001; Erevelles et al. 2013; Kozlenkova et al. 2014). Leeflang et al. (2014) argue the importance for companies to apply cross-functional coordination across marketing and other departments in order to respond to the requirements of digital transformation. Hence, the extant literature indicates that actual

value is created in a company with the ability to process, analyze and turn collected data into knowledge which can be acted upon to improve the company's marketing performance. However, strategically applying big data and analytics for marketing purposes is a relatively new practice which companies are experimenting with (Strong et al. 1997).

**2.1. Data-marketing process**

According to Edelman and Singer (2015) novel data sources, tools, channels and analytics are altering the marketing process, pushing companies to innovate and optimize the process. Mroz (2011) describes marketing process in the digital landscape as an interactive process where all components are constantly active and interacting with each other. Already "early" research done by Francese & Reneghan (1990), suggests the following brief overview of data-based marketing process. First, collected data is raw information that needs to be enhanced for an actionable marketing plan. The authors claim well-sorted and analyzed data bases can be categorized as operational and marketing data which are both crucial for a meaningful marketing database. Furthermore, data utilization into meaningful insight is a process consisting of collecting, managing and analyzing data (Chiehyeon et al 2018; Gandomi & Haider 2015; Järvinen & Karjaluo 2015; Wedel & Kannan 2016). Figure 2. demonstrates briefly the data-marketing process (Chiehyeon et al. 2018; Gandomi and Haider 2015; Järvinen and Karjaluo 2015; van Bruggen et al. 2001), from a big data perspective. The framework offers an outline for generating insight into big data management and analytics.



Figure 2. Data Driven Marketing Process

Järvinen and Karjaluo (2015) describe the data collection process as capturing data from numerous sources with different methods. Subsequently, data is managed and enhanced using analytics and analysis to provide meaningful insight (Chiehyeon et al. 2018; Gandomi & Haider 2015; Germann, Lilien & Rangaswamy 2013). Thus, the process leaves an essential challenge

for marketing departments; how to best capture, integrate and analyze data to support marketing decision making utilizing the emerging technologies and techniques (Johnson et al. 2019).

### **2.1.1 Data collection**

Big data is everywhere today either as structured (companies' traditional databases e.g. customer relationship management), semi structured, or in the form of unstructured data gathered from communication technologies and user editing platforms (Amado, Cortez, Rita, & Moro 2018; Sheng et al. 2017). In order to understand what, why, where and how companies collect data, it is essential to define the concept *big data* according to the current literature.

Sheng et al. (2017) suggest scholars consider big data as a “moving definition” which alters in time and sectors. They claim big data lacks a universal definition even though a general consensus is reached on the uniqueness of volume and large databases describing big data. Despite aforementioned, the extant literature (Amado et al. 2018; Erevelles et al. 2016; Gandomi & Haider 2015; Kumar et al. 2013; Lycett 2013; Sheng et al. 2017) among others, define big data using 3V framework, *volume*, *variety* and *velocity* which reflects the endless expansion of data. The increasing rapidity of constant data generation and the variety of rich data define the big data concept. Veracity and value have been added to the framework later on due the importance of collecting, analyzing and extracting insight from the big datasets. Moreover, quality over quantity.

Petabytes, exabytes and zettabytes measure the volume of big data as velocity refers to the relentless rapidity of data creation (Erevelles et al. 2016). Big data enables executives to access rich and current data in real-time shifting from traditional structured data to semi-, and unstructured data from numerous sources (Gandomi & Haider 2015). Despite all confusion, this study defines big data as extremely huge amount of structured, semi structured, unstructured data which is continuously generated and collected from various diversified sources in real-time impacting decision making through data management and analytics to provide meaningful insight. Big data is high-volume, high velocity and high variety of information requiring advanced technologies to capture, storage, manage and analyze information for business purposes.

Companies have started to capture and collect ever-increasing volumes of raw data through digital platforms and storing that data (Amado et al. 2018) to forecast market trends and support

decision making (Leventhal 2010). The new set of data sources, accompanying tools and measurements have fundamentally changed the nature of marketing. Big datasets are more complex as data is collected from diversified sources (*website, smart devices and social media*). The arrival of digital media has forced companies to collect data from multiple sources: (search queries, clickstreams, social media, website, e-mail, search engines, navigation paths on websites etc.) (Järvinen & Karjaluoto 2015; Kumar et al. 2013). Additionally, data is generated through cost tracking systems, operations, sales and public records available (Day 2011). Furthermore, companies have the possibility to not only collect data, but to purchase existing data sets, outsourcing the parts of the data generation.

**2.1.2 Data management**

Gandomi and Haider (2015) pinpoint the issue with big data, it is worthless in a vacuum. The massive amounts of big data need to be enhanced and managed to forecast the future (Day 2011). The potential of big data can only be leveraged when it enables data-driven decision making. Therefore, companies need to create efficient processes to turn large volumes of rapidly generated rich and diverse data into actionable knowledge (Davenport et al. 2001; Wedel & Kannan 2016). Furthermore, Chiehyeon et al. (2018) argue that the quality of data needs to be managed to gain meaningful insight and further advance the data analytics. Gandomi and Haider (2015) suggest a five-step process to manage big data (Figure 3). The process can be divided into two sub-sections; data management and data analytics.



Figure 3. Data process (modified by Gandomi & Haider 2015)

Data management includes the processes and technologies which acquire and store data preparing it for analysis (Gandomi & Haider 2015; Järvinen & Karjaluoto 2015). The Data management process suggested by Gandomi and Haider (2015) consist of 1) data acquisition and recording, 2) extraction, cleaning and annotation 3) integration, aggregation, representation of data. Wedel and Kannan (2016) provide alternative view, first aggregation and compression, second sampling and selection, and lastly computation. Thus, various researches suggest different steps in data management, a common theme in literature unifies the process; accessing

valuable and quality data from the vast pool of big data. Davenport et al. (2001), Erevelles et al. (2016) and Sheng et al. (2017) acknowledge that data management relates closely to not only technological issues, but also the technological and analytical capabilities of marketres. Successful data management process requires resources, analytical skills, technologies, management commitment, data-driven leadership and data-oriented organizational culture (Davenport et al. 2001; Erevelles et al. 2016; Järvinen & Karjaluo 2015).

### **2.1.3 Marketing analytics and models**

The efficiency of measuring marketing performance has evolved due to the availability of extensive customer data (Wedel & Kannan 2016). Rich records of data are being enhanced (Day 2011) with advanced analytics and predictive modeling which enables companies to forecast future outcomes. Germann et al. (2013) agree that marketing analytics undoubtedly enhances companies' ability to identify and assess further marketing actions. Gandomi and Haider (2015) consider marketing analytics as techniques used to analyze and generate insight from big data. In order to fully support data-driven decision making Wedel and Kannan (2016) suggest marketing analytics must encompass the following levels of analysis (Figure 4).

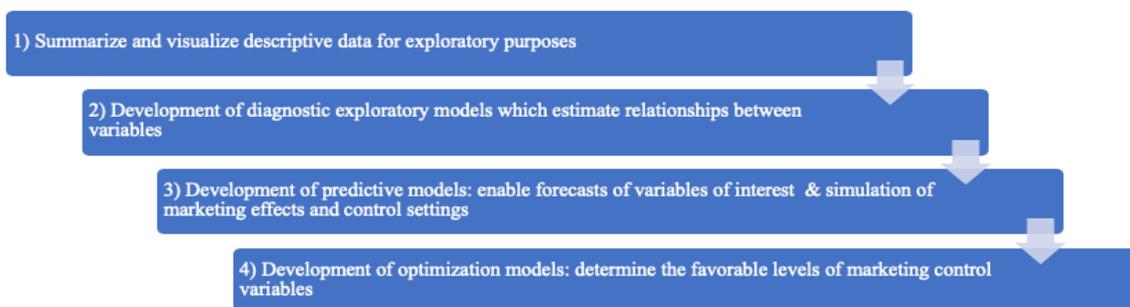


Figure 4. Levels of Marketing Analytics

Sharma and Sheth (2004) view digital marketing analytics guiding businesses to maximize their performance and effectiveness of marketing efforts as the digital platforms allow companies to monitor each step of the marketing process, supporting fact-based decision making. Hanssens and Pawels (2016) suggest marketing analytics consist of both hard and soft indicators.

Chaffey and Patron (2016) discuss that the web analytics companies use A/B testing, customer journey analysis, online surveys, customer feedback, usability testings, competitor benchmarking, and funnel analysis etc. to improve conversion rates. Wedel and Kannan (2016)

add key word search, retail analytics, segmentation, online review analytics, retargeting, profiling and behavioral targeting, social analytics, recommendations, trend analytics and web analytics. Furthermore, Järvinen & Karjaluo (2016) and Plaza (2011) acknowledge Google Analytics to be the major analytic system companies use in measuring website performance, such as number of website visitors, clicks and time spent on websites. Database analysis gives companies insight into customer behavior e.g. who buys, what buys and how often (Greenyer 2006). Furthermore, Johnson et al. (2019) claim marketing analytics to be generally perceived as the solution for justifying marketing actions.

However, the wide range of metrics available complicates the usage of web analytics due to the difficulty to decide which metrics are critical to ones' business (Chaffey & Patron 2012; Germann et al. 2013; Järvinen & Karjaluo 2016). Moreover, Chaffey & Patron (2012) and Järvinen & Karjaluo (2016) suggest companies should begin the selection by identifying key performance indicators (KPI). Majority of the companies in Chaffey and Patron (2012) research acknowledged the need to improve their analytic activities, starting from the identification of KPIs. The process is followed by funnel analysis, internal search, data mining and the integration of user testings and analytics.

Several researchers (Germann et al. 2013; Järvinen & Karjaluo 2016) acknowledge the scepticism towards web analytics as web analytics technologies are not yet used as extensively to positively impact marketing and decision making as to be expected (Chaffey & Patron 2012). Järvinen and Karjaluo (2016) research reveals that companies' capabilities to harness web analytics in improving marketing performance are limited. Only less than one third of marketers thought they were doing well with web analytics. Thus, over 60 % of the *Top 10 Million Webpages* utilize web analytics. Both Chaffey & Patron (2012) and Järvinen & Karjaluo (2016) claim that the adoption levels of web and marketing analytics are high, thus the usage is surprisingly low. Furthermore, Germann et al. (2013) claim that only 10 % of the firms in their research regularly employ marketing analytics.

#### ***2.1.4 Data insights and utilization***

Digitalization has allowed companies to access and utilize vast amounts of consumer data (Kumar et al. 2013; Wedel & Kannan 2016) despite this, Pauleen and Wang (2017) raise an

important question “*does big data mean big knowledge*”? They discuss the importance of human knowledge regarding big data as human knowledge has developed the capabilities of big data and analytics. Without knowledge, analytics do not exist. Lycett (2013) conceptualizes the process of making sense about big data as *datafication*, taking a business intelligence (BI) view where data is the underlying resource. It encompasses the data infrastructure, applications, tools and practices needed to effectively capture, represent and deliver data to aid decision making. Also, Sheng et al. (2017) agree such business intelligence is acquired from combining advanced big data analytic techniques to gain valuable insight.

Human knowledge and experience answer for the decisions concerning data collection and the algorithms used in analyzing data. Subsequently, human knowledge is responsible on how insights from big data analytics will be utilized. Sheng et al. (2017) claim decisions based on big data enable more effective, flexible and accurate actions. Pauleen and Wang (2017) acknowledge, the emerging trend of employing analytical and intelligent tools have contributed evidence suggesting valuable intangible assets are identified internally and externally in a company. In conclusion, consumer data enables companies to tailor offerings based on customer needs moreover, to optimize marketing activities accordingly (Kumar et al. 2013).

Tools that make marketing managers benefit from the available data and support decision making are labeled as marketing management support systems (van Bryggen et al. 2001) Furthermore, the support systems and tools combine information technology, analytical capabilities, marketing data and marketing knowledge.

### **3. BUSINESS MODEL INNOVATION FROM A RESOURCE-BASED VIEW**

The applications of (RBT) in marketing research have increased, which according to Kozlenkova et al. (2014) indicates the importance of the framework in explaining and predicting competitive advantages as well as performance outcomes (Erevelles et al. 2016; Seddon 2014). In this study business model innovation is viewed from a resource-based view. Seddon (2014) argues companies' business models are both resources and capabilities as well as an important determinant of success and profitability. Business models demonstrate how companies work (Sorescu 2017), create, deliver and capture value. Moreover, business models describe how companies create value through identifying key resources, capabilities and processes (Guo et al. 2013). Companies are required to allocate applicable physical, human and organizational capital resources to exploit from the benefits of big data (Erevelles et al. 2016; Kumar et al.2013; Wedel & Kannan 2016).

#### **3.1 Resource-based theory**

Seddon (2014) claims that RBT has become among the most cited theories, used by marketing scholars (Erevelles et al. 2016) as it explains the internal sources of sustained competitive advantage (Rahman et al. 2018; Seddon 2014). RBT suggests companies to acquire and control rare, valuable, inimitable and non-substitutable assets and to absorb and apply them into competitive advantage (Erevelles et al. 2016; Kozlenkova et al. 2014).

Lu and Liu (2012) imply resource-based theory in their research as general a concept representing a resource, knowledge, rational and capability perspective. Furthermore, the RBT suggests companies to combine various resources and capabilities moreover, to generate assets fulfilling the VIRO-criteria to create and sustain competitive advantage. According to Rahman et al. (2018) some assets aid companies to generate competitive advantage as some help to sustain it. Erevelles et al. (2016) acknowledge the valuable explanation that RBT offers on big data and data-orientation impacts on marketing and business performance.

Assets include company's resources, capabilities, processes, firm attributes, information, knowledge and culture etc. which are controlled to develop and implement strategies improving the efficiency and effectiveness (Barney 1991; Day 2011). The highly competitive business environment forces companies to reconfigure resources in order to generate competitive

advantage (Day 2011; Kozlenkova et al. 2014) Resources become valuable when they are nurtured and exploited to take advantage of opportunities existing in the external environment (Rahman et al. 2018). Rahman et al. (2018) and Varadarajan (2015) describe companies' resources to be tangible or intangible. Erevelles et al. (2016) and Lee and Grewal (2004) consider tangible (e.g. technical, computer) and intangible (e.g. tacit knowledge) big data resources determining the level of performance in a company when the resources are rare, imitable yet exploitable by the company. Kozlenkova et al. (2014) implies the transition toward knowledge-driven offerings have made the intangible knowledge resources pivotal to success. Resources can be further categorized into physical, financial, human and organizational resources (Kozlenkova et al. 2014; Seddon 2014). Varadarajan (2015) supplements the four categories with legal, informational and relational resources.

Erevelles et al. (2016) examined resources in the context of big data. Physical capital resources include softwares and platforms that companies utilize in data collection, storing and analyzing big data. Agrawal, Das & Abbadi (2012) and Sheng et al. (2017) acknowledge, that more advanced data management platforms have been elaborated as Erevelles et al. (2016) point out that traditional softwares lack the capability of analyzing big data. Therefore, companies need to establish data platforms that are capable of collecting, storing and analyzing large amounts of continuous data flows in real time (Agrawal et al. 2012; Davenport et al. 2012). The diversity of big data can be regarded as *enterprise assets* which according to Sheng et al. (2017) yields to actionable business insights. Yet Erevelles et al. (2016) and Seddon (2014) highlight the importance of combining physical and human capital resources as human capital resources describe how information is captured and managed to extract insight from big data (Erevelles et al. 2016). According to Seddon (2014) IT-managerial skills are a valuable resource in data-driven marketing as they are required to understand the needs of business managers, develop appropriate applications, coordinate IT activities and foresee future technology requirements which are considered to be a source of competitive advantage. Technical assets play a strategic role when combined with organizational resources to generate IT-enabled resources.

<b>Resource</b>	<b>Definition</b>	<b>Data-marketing resources</b>
Physical	Include all the physical assets of a company, such as technologies, softwares and equipments owned by a company.	Technological Infrastructure Data platforms Analytical tools Softwares Technology assets Big data

Financial	Covers all the funds and money of a company, the corporate capital.	Financial assets Marketing budget
Human	Include all the skills, experience, intelligence, insight, knowledge, relationships and training of an individual person (employee) of a company.	Managerial skills IT-skills Technical skills Business understanding Management commitment Leadership Marketing knowledge Big data knowledge
Organizational	Are a group of individuals. Including organizational culture, structure, architecture, reputation and brand image of the company.	Data-driven culture Organizational structure

Table 1. Company Resources

According to Kumar et al. (2013) and Wedel & Kannan (2016) the primary challenge in applying data-marketing is adopting organizational data culture and shifting to data-orientation. Furthermore, Sheng et al. (2017) acknowledge the shift within organizations, managerial perceptions and processes along data-driven marketing which results to changes in organizational culture, leadership, human resource management and other management areas. According to Sorli and Stokic (2009) an appropriate organizational structure aids big data management and analytics to generate knowledge. Creating a culture which embraces data utilization in business management which Järvinen and Karjaluoto (2016) consider beneficial as data must be utilized to encourage learning resulting in effective usage. Moreover, the transparency and ease of accessibility of data is needed for technological innovations to become an essential element in the data-driven decision-making culture. Thus, Teece et al. (1997) criticize that companies rely too much on past experience, complicating the changes in organizational structure to better respond to evolvments in market conditions.

Rahman et al. (2018) acknowledge the need to develop resources into capabilities and to effectively respond to the rapidly evolving market conditions. Thus, Barney (1991) implies that not all resources and capabilities are strategically relevant moreover, companies are required to recognize and evaluate the essential ones. The resource-driven approach suggests companies achieve competitive advantage through developing, possessing, capitalizing and deploying strategic resources that are particular to the company and are non-substitutable, difficult to copy and generate value for consumers (Agić, Cijarević, Kurtović & Cčić 2016).

### ***3.1.1 Dynamic and adaptive capabilities***

The resources discussed in the previous chapter refer according to Kozlenkova et al. (2014) to something a company can draw on to achieve its objectives. Hence, capabilities represent companies' non-transferable, company specific resources aiming at improving the productivity of other resources owned by the company (Trainor et al. 2011). Companies generate competitive advantage through collection, integration and deployment of resources in a way that enables them to function together to create capabilities (Germann et al. 2013). Capabilities can be viewed as subsets of firms' resources (Kozlenkova et al. 2014), thus Seddon (2014) describes capabilities as a subset of company assets, not resources.

Wang and Sengupta (2016) define capabilities as a complex group of skills and accumulated knowledge, practiced through organizational processes permitting companies to coordinate activities that make the most efficient and competitive use of these assets. Capabilities "glue" assets together enabling the advantageous deployment of them (Day 2011). Moreover, capabilities are intensely embedded in company processes and practices using cumulative learning and tacit knowledge (Day 2011) to alter the existing resources in creation of new value (Erevelles et al. 2016). Therefore, capabilities are difficult to imitate or value (Day 2011).

Marketing scholars further propose the concept of *dynamic capabilities* and *adaptive capabilities* (Erevelles et al. 2016; Koch 2010; Kozlenkova et al. 2014; Teece 2014; Wang & Sengupta 2016). Day (2011) also introduces the concept *static capability*. Both dynamic and adaptive capability theories aim to explain the performance differences in companies. Subsequently, Day (2011) implies that sustainable advantage requires dynamic capabilities to generate, adjust and sustain the relevant stock of capabilities. Moreover, the efficient deployment of assets may result in enhancements in company's ability to adapt to its competitive environment (Trainor et al. 2011).

Day (2011) introduces the process of developing capabilities as Teece (2018) discusses capabilities to exist on two levels. The base level *operational* and *other ordinary capabilities* occur in the first step of (Day 2011) process where stable process activities, routines and the basic governance occurs allowing companies to pursue its activities. The process is followed by sensing and scanning of capabilities which are reconfigured to develop dynamic capabilities, forming the "upper layer" which according to Teece (2018) can be further divided into micro

foundations and higher-order-capabilities. This phase also includes adding new capabilities to pursue novel opportunities. Finally, through experimental learning, adaptive capabilities are developed. Moreover, adaptive capabilities permit anticipation and rapid reconfiguration of process activities if needed (Kozlenkova et al. 2014).

The dynamic capabilities view emphasizes the role of top management (Trainor 2011) in properly adapting, integrating and reshaping company skills and resources along with internal and external (Teece 2007) functional competences. Erevelles et al. (2016) consider dynamic capabilities as company's ability to respond to changes, implement new strategies (Trainor 2011) and to adapt to new market conditions (Akter, Wamba, Barrett & Biswas 2018). It enables the integration, assembling and rearranging of internal and external competencies to address the rapidly evolving environments (Akter et al. 2018). Furthermore, dynamic capabilities constantly generate, expand, enhance, secure and keep the company's unique asset base relevant (Teece 2007). Day (2011) describes the functions of dynamic capabilities 1) sensing environmental changes in terms of threats and opportunities furthermore, scanning, searching and exploring markets and technologies (Akter et al. 2018; Orlandi 2016) 2) addressing to changes by combining and transforming available resources in novel ways (Erevelles et al. 2016; Trainor 2011) 3) selecting the business model for delivering value to consumers (Nath, Nachiappan & Ramanathan 2010) and lastly, capturing financial profits.

Day (2011) describes dynamic capabilities from an inside-out perspective, starting from the company rather than the market. The primary function is to exploit existing resources whereas outside-in perspective explores new possibilities. Yet, Kozlenkova et al. (2014) argue that both inside-out and outside-in capabilities must match each other. According to Orlandi (2016) dynamic capabilities permit companies to improve market knowledge by sensing, seizing (Day 2011) and responding to novel opportunities. Kozlenkova et al. (2014) view dynamic capabilities as information based and to be either tangible or intangible processes enabling companies to exploit its other resources more efficiently. According to Wang and Sengupta (2016) innovation, organizational learning and knowledge integration are the generally accepted components in literature of dynamic capabilities.

Johnson et al. (2017) view capabilities as antecedent routines through which managers alter existing resources to create novel and value-creating strategies. Capabilities are drivers behind creation, innovation and recombination of resources resulting in competitive advantage (Teece

2007; 2018). According to Koch (2010) capabilities unite assets such as IT infrastructure and analytical skills permitting companies to deploy these assets advantageously. Furthermore, Koch (2010) introducing the concept of *digitized process reach* which refers to company's ability to deploy integrated and connected information technology (IT) in marketing activities. In the data-driven business environment, the continuous need to process data streams rapidly and accurately has become crucial (Järvinen & Karjaluoto 2016; Wedel & Kannan 2016). The rise of big data has changed the information environment as well as the needed capabilities to successfully compete in the market (Johnson et al. 2017).

Dynamic capabilities may result in developing new practices and processes which contribute to company performance (Wang & Sengupta 2016). Moreover, scholars researching dynamic capabilities from a marketing perspective agree that the dynamic capabilities perspective suggests marketing capabilities and resources to be combined and integrated with other complementary capabilities leading to sustainable competitive advantage (Trainor 2011). Thus, Day (2011) addresses the dependency on having the right marketing capabilities to keep up with the high-velocity and complex markets. Raising the question of which marketing capabilities really matter.

The advance toward adaptive marketing capabilities is driven by necessity and technology developments (Day 2011). Trainor (2011) emphasizes adaptive capabilities as stressing to the extent to which a company may utilize various organizational capabilities in implementing changes in strategic position. Thus, in a marketing domain Kozlenkova et al. (2014) describe adaptive capabilities allowing companies to anticipate trends and events even before being entirely apparent subsequently, to adapt effectively. Kumar et al. (2013) claim vigilant market learning to be one of the key skills in data-driven marketing as the primary objective is to gain deep market insight and actionable knowledge (Järvinen & Karjaluoto 2016). Day (2011) argues that organizations that have the best capabilities to adapt to the volatility and complexity are more resilient. They embrace real-time decision making, share key activities with partners and networks as well as to learn to profit from new uncertain market environments.

The expediting velocity and complexity of markets (Erevelles et al. 2016) are demanding more advanced marketing capabilities (Day 2011; Davenport et al. 2001). Hence, the highly competitive environment requires managers to further expand company capabilities to “*integrate, build and reconfigure*” internal and external competencies (Johnson et al. 2017).

Moreover, the advances in analytical and knowledge-sharing technologies are bringing these novel data-driven marketing capabilities within reach. Furthermore, data-driven marketing enables value creation resulted from enhanced decision-making (Erevelles et al 2016; Kumar et al. 2013; Sharma & Sheth 2014; Wedel & Kannan 2016). In the hyper competitive business environment companies need to make rapid adjustments based on the current data which Day (2011) describes as the development of adaptive capabilities. Enhanced anticipation drives adaptive capabilities improving companies' competency to proactively respond to changes.

Hence, Trainor (2011) discusses adaptive capabilities from the organizational adaptability perspective involving company's ability to identify and capitalize technological opportunities (Erevelles et al. 2016; Kumar et al. 2013; Wedel & Kannan 2016). Trainor (2011) suggests, the primary strategic focus for a company aiming to remain adaptable is its technological focus. (Trainor 2011) Zhou and Li (2009) suggest that technology-oriented companies assemble valuable knowledge through past experience and processes such as investments in R&D, rapid acquisition of technologies and up-to-date technology information. This facilitates companies' ability to exploit existing competencies in refining technology to respond to market changes. Therefore, Zhou and Li (2009) believe technology orientation enhances adaptive capabilities.

### ***3.1.2 Data-marketing capabilities***

The concept of marketing big data analytics (BDA) according to Johnson et al. (2019), refers to the technologies and statistical techniques marketers utilize in analyzing vast amounts of data to make advantageous insights on consumers and competitors. There is no debate that data-driven companies have better understanding on their costs, sales potential and emerging market opportunities (Johson et al 2019; van Bruggen et al. 2001) resulting in improved performance (Sheng et al. 2017). Yet, managers face challenges in making sense of large data sets and analytical tools (Erevelles et al. 2016) and deciding how technologies and analytics can be integrated and implemented (Johson et al. 2019). Entirely new marketing forms have emerged during the recent year and as a result Sheng et al. (2017) and Wedel & Kannan (2016) suggest marketing analytics play the primary role in these developments. Meaning, there is an urgent demand for novel more powerful marketing metrics and analytical methods (Järvinen & Karjaluoto 2016) which make data-driven marketing operations more efficient and effective. However, a clear gap exists on how companies should develop, innovate and implement data-driven analytics and capabilities (Davenport et al. 2001; Wedel & Kannan 2016). This section

addresses these challenges aiming to provide insight on the required capabilities to overcome the challenges marketers face today.

Data-driven marketing requires diverse market-based assets such as marketing capabilities, technology capabilities, R&D capabilities and innovation (Kozlenkova et al. 2014). Furthermore, information technology, analytical capabilities marketing data and knowledge are according to van Bruggen et al. (2001) improving the quality of data-driven marketing. Marketing capability is defined by Nath et al. (2017) as an integrative process of all marketing related activities utilizing superior market knowledge of consumers and competitors. In turn, operations capability refers to the processes, technologies and reliability and quality of operations. Companies develop marketing capabilities by combining individual skills and knowledge with available resources. Connectivity provides the ability to link and analyze data from various sources as compatibility refers to real-time decision making by exploiting various technologies and analysis (Akter 2018). According to Nath et al. (2017) marketing capabilities have a larger impact on financial performance when companies invest on better assets to innovate in the dynamic environment.

Creativity is essential for a company to advantage form big data (Erevelles et al. 2016). Johnson et al. (2017) describe that the vast information flow and enabling technologies with the acquisition of knowledge have resulted in collection and management of big data. Hence, companies' competencies to utilize big data operates as a capability today creating unique sources of innovation and competitive advantage. Furthermore, companies are required to devise novel ways of analyzing big data, generate actionable insight and implement new marketing activities (Erevelles et al. 2016). Creative intensity lies in the skills of a employees generating innovative ideas additionally, organizational culture enables companies to utilize innovative ideas. However, Leeflang et al. (2014) imply managers to be afraid that data-driven decision making will reduce innovative ideas. They suggest that creativity and innovation will be to some extent reduced in a data-driven environment. However, they recognize big data as an important source for innovation (Johnson et al.2 2017). Creativity aids companies to build knowledge-based resources that are hard for competitors to imitate (Erevelles et al. 2017).

Johnson et al. (2017) view companies' ability to utilize big data as a capability. Moreover, Sheng et al. (2017) argue big data to be regarded as a company asset which yields to actionable insight. Big data is transforming businesses and serves as a cross-functional capability enabling

managers to coordinate strategies and decision-making according to market demands (Johnson et al. 2017; Pisano, Pironti & Rieple, 2015). According to Eisenhardt and Martin (2000) dynamic capabilities cover new process innovation, which Pisano et al. (2015) consider essential in big data utilization. Marshall, Mueck and Shockley (2015) imply that data-driven companies that utilize big data and analytics in innovation processes are 36% more likely to outdo their competitors in revenue growth and operating efficiency. Despite the potential benefits big data offers, many companies fail to optimize big data utilization (Johnson et al. 2017; Erevelles et al. 2016; Kozlenkova et al. 2014; Marshall et al. 2015; Wedel & Kannan 2016). Companies struggle balancing with the allocation of limited resources across the exploitation of existing marketing opportunities and the exploration of new opportunities. Therefore, Johnson et al. (2017) views big data innovation to be the ultimate advantage and challenge for companies.

Kumar et al. (2013) address the importance of managerial capabilities in data-driven marketing as van Bruggen et al. (2001) claim managerial judgement to be the primary asset for marketers. It is important for top management to view data-driven marketing as a strategic priority as it enables investments into right managerial talent support systems as well as to understand the financial benefits of data-driven strategies. Yet, according to Leeflang et al. (2014) only 4% of the participants feel they have the required capabilities to manage business efficiently. Furthermore, a big data management perspective describes how resources capabilities are assembled and utilized to make quality decision (Kumar et al. 2013). Marshall et al. (2015) argue for the managerial capabilities to take analytics and actionable insight to the next level. Kumar et al. (2013) research reveals that managers utilizing high-quality analytics make better decisions. According to Marshall et al. (2015) successful managers follow three basic strategies centered by data; skills, tools and culture.

Employee skills are another crucial capability in data-driven marketing. Furthermore, Kumar et al. (2013) emphasizes the importance of training employees to use, track, analyze and generate insight of data sets. Akter et al. (2018) argue that employees are required capabilities in critical decision making by exploiting predictive modeling in acquiring and retaining customers. Data-driven marketing further requires capabilities from employees to establish causalities, identify trigger events, exploit social interaction modeling and customer journey mapping (Kumar et al. 2013). Excellent marketers are able to judge formal and informal

information in data analyzation (van Bruggen et al. 2001) as well as to be creative in transforming data into effective marketing programs (Davenport et al. 2001). Subsequently, van Bruggen et al. (2001) claims that marketing experts own comprehensive up-to-date content knowledge with extremely evolved perceptual capabilities. They obtain improved capabilities to understand relevancy in decision making, are able to simplify problems, can communicate their expertise to others as well as to adapt their decision strategies to changing task conditions.

Akter et al. (2018) and Kumar et al. (2013) discuss analytical capabilities in the context of big data and data-driven marketing. Akter et al. (2018) further categorizes analytical capabilities into technology, talent and information capabilities. According to Kumar et al. (2013) analytical capabilities ensure the establishment of IT infrastructures and the collection, storing and analysis of data. Also, Sheng et al. (2017) suggest companies to treasure experts in data management and analytics combined with technical capabilities. Companies obtaining analytically skilled employees is a strategic asset, yet companies are forced to outsource analytically heavy tasks. Leeflang et al. (2014) observed that companies are progressively seeking to hire marketing intelligence experts with statistic, mathematic and econometric skills. Thus, experts with excellent quantitative and analytical skills often lack a background in marketing. Many companies develop required skill sets through training on the job and by providing marketing intelligence traineeships.

Technological capabilities provide technical infrastructure, the integration of data from various sources. Furthermore, Akter et al. 2018 propose that technological capabilities permit companies to develop and implement technical aspects of data usage in marketing. It is essential for companies to innovate and develop marketing capabilities (Erevelles et al. 2016) to adapt to the constantly evolving marketing environment (Teece 2018). Akter et al. 2018 views modularity as a technological capability referring to the flexibility of analytic platforms in developing a variety of dynamic models to seize opportunities. Big data has accelerated the requirements for technological capabilities (Erevelles et al. 2016; Sheng et al. 2017).

The demand for emerging techniques is according to Sheng et al. (2017) increasing since advanced systems have more functions and flexibility resulting in more cost-effective and efficient analytics. The data-driven approach is capable to enhance business performance (Kumar et al. 2013; Wedel & Kannan 2016) with improved accuracy in prediction based on solid data rather than intuition (Sheng et al. 2017). E-marketing capability refers to company's

competence and ability to utilize internet among other information technologies to facilitate rich interactions with consumers (Trainor 2011).

### **3.2 Business model innovation**

A business model describes how a company operates and does business (Sorescu 2017; Teece, 2010; Zhao et al. 2013) as well as creates, delivers and captures value (Osterwalder & Pigneur 2010; Robertson 2017). Companies introduce new ideas, technologies and processes through business models (Chesbrough 2010). Teece (2010) views business models from a strategic perspective as the manner how companies deliver value to consumers, tempting them to pay for value which converts into profits which Robertson (2017) describes as a marketing process. Robertson (2017) argues that the activities performed in a business model are mainly marketing functions. Business models are developed and designed in a company in the present and future as an abstract representation of company's products or services offered or to be offered in the future which are based on the arrangements required to achieve strategic goals and objectives (Parnell et al. 2017). The purpose of a business model is according to Zhao et al. (2013) to describe how companies implement strategies in practice. Thus, Coombes and Nicholson (2013) state that business models and strategy are not the same thing. However, Robertson (2017) and Zhao et al. (2013) acknowledges there are countless definitions for business models.

Osterwalder and Pigneur (2010) research provides nine building blocks for a business model; *“customer segments, value propositions, channels, customer relationships, revenue streams, key resources, key activities, key partnerships and cost structure”*. Robertson (2017) presents a similar view of business model leaning on Chesbrough's (2010) research where a business model is viewed followingly; *“articulates value proposition, identifies marketing segments, defines value chain structure details revenue mechanisms, estimates cost structures, describes the position of the firm as well as formulates the competitive strategy”*. According to Zhao et al. (2013) business modes enables companies to gain profit through designed revenue formulas and cost structures and moreover, describing how companies generate value through the identification of key resources, capabilities and processes. Leaning on the extant literature it can be identified that business models combine external elements and internal elements. However, according to Frankenberger et al. (2013) there is still a debate on the common components of a business model.

Zott and Amit (2017) acknowledge the challenge confronting companies to develop new business models that operate in the digital environment (Sedra, Lokuge, Grover, Sarker & Sarker 2016), claiming that new ideas are vital and business models are increasingly viewed as the primary source of innovation (Zott & Amit 2017). Thus, Sedra et al. (2016) consider that the technological advancements have aided companies in innovation through improved decision-making, increased consumer connectivity and improved communication facilities. Zhao et al. (2013) believe that the rapid technology improvements have enabled companies to fundamentally change how business is done as we have entered into the “golden age” of digital innovation (Tarabucchi et al. 2019). Hence, business model design has become a major source of innovation as a better business model often overrides a better idea or technology. Thus, success is as much dependent on business model innovation as it is on technology (Zhao et al. 2013).

Leading companies are investing in innovation as Marshall et al. (2015) suggests these companies are leveraging the ever-increasing opportunities to collect, combine, exploit big data and analytics to defeat competitors. Innovation in marketing literature has foremost focused on product and service development (Johnson et al. 2017; Visnjic, Wiengarten & Neely 2016) paying little attention to business models (Robertson 2017). Thus, Robertson (2017) supports the argument from previous academia where business model innovation is perceived to have greater success (Zhao et al. 2013) in the long run over product innovation. According to Frankenberger et al. (2013) scholars have indeed acknowledged business model innovation as a primary source of competitive advantage. Their research refers to BCG 2008 research where business model innovators were found to be 6% more profitable during the last five years compared to pure product or process innovators on average.

Fundamentally, business model innovation is defined as a novel way of creating and capturing value through changing of one or more component in a business model (Amit & Zott 2012; Chesbrough 2010; Frankenberger et al. 2013; Teece 2010). Business model innovation is a reconfiguration of how a company does business (Zott & Amit 2017). It surpasses the “general scope” of new product or service innovation hence, unlocking completely new opportunities for companies (Frankenberger et al. 2013). According to Zhao et al. (2013) business model innovation expedites company renewal, aids technology commercialization and enhances overall performance.

According to Yu (2016) the development and implementation of an appropriate business model results into successful business and is considered as the primary source of value creation. Visnjic et al. (2016) views business model innovation as the change in the design of a company's activity system uniting elements involved in the value creation process; consumers, partners, suppliers and stakeholders (Zott & Amit 2007). Business model innovation is a continuous process (Frankenberger et al. 2013). Furthermore, business models provide the missing link between strategy and tactics (Coombes & Nicholson 2013). Sorescu (2017) suggests three building blocks implicit to define business model innovation; value creation, value delivery and value appropriation.

Business model innovation may occur in various ways by adding new activities, linking activities in new ways and by changing one more parties' performing these activities (Amit & Zott 2012). Frankenberger et al. (2013) provide an innovation process model based on the extant innovation literature. The process consists of *initiation* (preliminary assessment), *ideation* (idea generation), *integration* (developmental period) and *implementation* (testing and validation). However, Osterwalder and Pigneur (2010) proposed the following steps; 1) *mobilize* (design of project), 2) *understand* (research and analyze required elements in business model design), 3) *design* (testing options), 4) *implement* (implementation of selected business model), 5) *manage* (adaption and modifying business model) in generating business models.

Similarly, Teece (2010) has generated a list of steps to achieve a sustainable business model. The process starts with market segmentation and creating a value proposition for segments followed by design and implementation of these mechanisms to capture value and lastly to prevent competitors from imitating. Thus, Frankenberger et al. (2013) criticize the models presented by (Teece 2010 and Osterwalder & Pigneur 2010) that neither provides an integrative framework describing BMI process as whole. Therefore, the aim of Frankenberger et al. (2013) research was to generate a comprehensive framework for business model innovation. The 4I-framework describes the phases of business model innovation process and its primary challenges.

### ***3.2.1. Data-driven business model innovation***

Digitalization and the digital revolution are threatening existing business models (Leeflang et al. 2014). According to Leeflang et al. (2014) digital marketing is highly impacting the

transformation of business models. Data-driven business models are emerging companies are forced to embrace big data, adopt advanced information systems to improve effectiveness and flexibility of their decision making (Sheng et al. 2017). Sorescu (2017) identified big data as the specific factor which has enabled both business model innovation and the improvement of competitive advantage. Moreover, LeeFlang et al. (2014) suggests that big data has become the norm in the digital world. However, their findings reveal that 80% of the participant companies lack the ability to link data to usage.

According to Sheng et al. (2017) scholars view big data as company asset however, data does not automatically translate into value. Thus, data-driven innovation occurs when insights are drawn from data which lead to business improvements. Accordingly, Rayport and Sviokla (1995) provide a five-step framework for value creation process. Figure 5. demonstrates the value creation process where the first phases are data related activities followed by selecting, synthesizing and distributing which are dependent on the data usage. The latter steps include data filtering, analysis, visualization, analytical models and information delivery tools. Value increases through each step of the process. Hence, Lusch and Vargo (2004) underline the need for companies to develop competencies and skills to derive value from big data. Also, to identify stakeholders and customers which benefit from the developed assets.

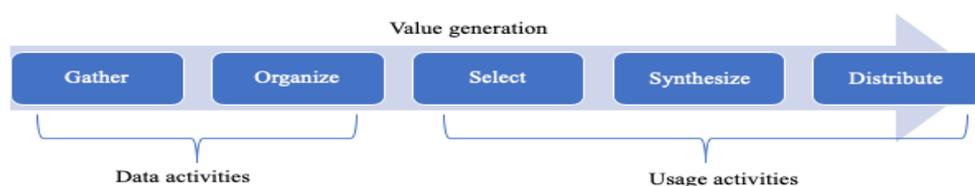


Figure 5. Value creation process (modified from Rayport & Sviokla 1995)

The huge fuzz around big data and the digital disruption is according to Daniel and Carillo (2017) unprecedented hence, destroying companies long-successful business models. Therefore, the paradigm shift towards data-driven perspective is strongly impacting strategies, business models and processes (Daniel & Carillo 2017; Erevelles et al. 2016; Wedel & Kannan 2016). Sorescu (2017) suggests big data to be a source of competitive advantage and a catalyst for business model innovation. Big data provides a deep insight into information flow reflecting the potential enhancements on business operations in real-time. According to Erevelles et al. (2016) big data can enhance business model innovation with data and digital transformation.

The data-driven business models enable companies to extend knowledge, improve effectiveness and efficiency as well as the flexibility of decision-making processes.

Sorescu (2017) simplifies data-marketing business model innovation as a need to create change in value creation. Furthermore, it can be designed around processes of collecting, organizing, summarizing external data with the goal of simplifying market research process, increasing profitability, identifying customer needs, improving product recommendations and promotional efforts. According to Teece (2018) and Zhao et al. (2013) the link between profits and business model innovation is clear as the success of a business is dependent on business model design, implementation, selection of technologies and tangible assets operations. Thus, Zott and Amit (2017) suggest that BMI can introduce completely new digitally supported activities and drop redundant ones. Furthermore, BMI aids companies in commercial decision-making to generate competitive advantage in the digital world.

### ***3.2.2. Innovation process***

Erevelles et al. (2016) point out the necessity for creative thinking in order for companies to leverage form big data innovations (Naggar 2015). Erevelles et al. (2016) suggest firms must discover new ways to analyze data, create actionable insight and implement new marketing activities. Companies need to embrace data and adopt advanced information systems in order to enhance decision-making processes to be more effective and flexible (Sheng et al. 2017).

Johnson et al. (2017) claims that innovation captures the whole process by which companies generate novel ideas to converting them into new processes. Comprehensively, improved understanding of customers through big data advances the effectiveness of existing marketing activities, potentially resulting to incremental innovation. Thus, companies must apply consumer insight to constantly redefine marketing activities to implement radical innovation. (Erevelles et al. 2016) The innovation engine, introduced by Johnson et al. (2017) augments the importance of assessing revenues earned through the innovation process. It begins with information gathering derived through big data supporting the development of new marketing models.

The innovation process (Figure 6.) by Frankenberger et al. (2013) consists of initiation, ideation, integration and implementation. The *initiation* stage refers to the discovery of understanding the need for innovation furthermore, revealing new needs or technologies

(Rothwell 1994). Thus, this stage can also be described as analyzing the environment and identifying novel opportunities (Cormican & O' Sullivan 2004). Second phase refers to idea generation (Frankenberger et al. 2013) as integration is viewed as the developmental period (Rothwell 1994) where project plans are made and executed. The final phase implementation consists of testing, validation, marketing and sales (Rothwell 1994) as well as launching, learning, sustaining and learning (Tidd & Bessant & Pavitt 2005).

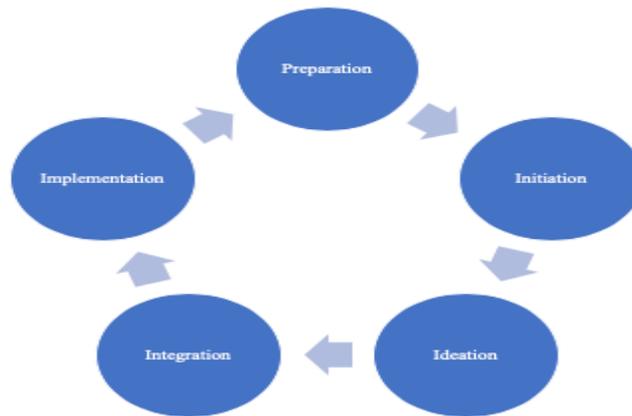


Figure 6. Innovation process (Modified from Frankenberger et al. 2013)

### 3.2.3. *Business model innovation tools*

Seddon (2014) suggests the following path for utilizing RBT in business innovation. Managerial insight is generated on how data-marketing creates competitive advantage which leads to system development and innovation and lastly, competitive advantage. Trainor (2011) suggest that new capabilities are a form of innovation. Hence, Erevelles et al. (2016) suggest both dynamic and adaptive capabilities stimulate innovation enabling companies to generate value. In turn, Teece (2018) claims that the design and operation of business models is dependent on companies' capabilities. Dynamically capable organization is able to quickly implement, test and refine novel and revised business models.

Dynamic capabilities result in successful implementation as it draws on management's architectural design, organizing assets and learning functions (Teece 2018). With big data companies are able to create value through incremental and radical innovation (Erevelles et al. 2016). Furthermore, according to Johnson et al. (2017) big data enables companies to adapt to novel environments rapidly through innovation by utilizing three primary mechanisms; cost, accessibility and business model structure. Thus, Johnson et al. (2019) discovers that marketing

managers regard big data analytics as decision-making tools and capabilities for informing innovation and marketing strategies.

The extant literature has stressed business model innovation to be a formidable source of competitive advantage (Frankenberger et al. 2013; Sorescu 2017; Zhao et al. 2013) moreover, the essential role of top managers (Parnell et al. 2017; Robertson 2017; Seddon 2014; Zhao et al. 2013). Zhao et al. (2013) suggest both human and social capital of top managers are necessary in business model innovation. Human capital refers to managers innate and learned skills, knowledge and expertise. Managerial skill help companies to solidify its established competitive advantage. Moreover, the ability to effectively organize, allocate and configure company resources. Another option for managers according to Parnell et al. (2017) is to hire analyst companies to help improve data-marketing. Thus, technology analysts don't necessarily analyze business models. However, they offer knowledge on current market conditions and future trends provided by big data for senior managers to aid strategic decision-making.

#### ***3.2.4. Business Model Canvas***

Business model innovation driven by big data is changing existing business models or creating new ones (Zhao et al. 2013). Companies exploiting big data alter businesses by rearranging resources and capabilities (Zott & Amit 2017), changing decision-making and the way a business operates (Sedra et al. 2016). Osterwalder and Pigneur (2010) concretize business models using business model canvas which enables companies to link impacts with business functions from a big data perspective. Business model canvas aids companies to remain focused on the relevant issues and questions such as comparing proposed business models with current ones. Figure 7. presents Osterwalder and Pigneur's (2010) business model canvas and the nine elements (Ladd 2018) are defined below in the context of data-driven marketing.

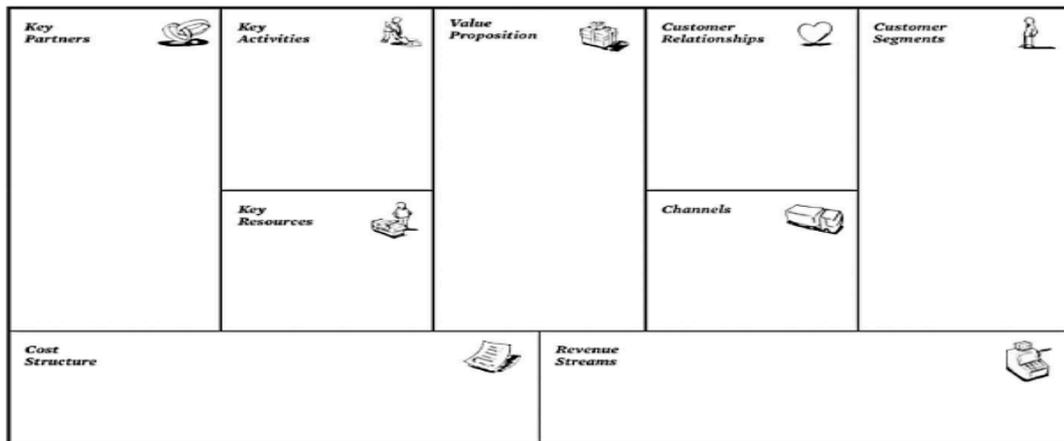


Figure 7. Business Model Canvas (Osterwalder & Pigneur 2010)

**Customer Segments:** They are groups of paying customers who have common desires and attributes (Osterwalder & Pigneur 2010). There are various approaches for companies to utilize in segmentation (Ladd 2018). A company may serve one or more segments (O’Neill 2015).

**Value propositions:** A business aims to solve consumer problems and satisfy customer needs with the value proposition (O’Neill 2015). Describing the benefits of the service by addressing the needs of various customer segments. Value proposition and cost structure capture the details on technologies utilized in products or services (Ladd 2018).

**Channels:** Channels refer to the methods and means by which companies interact with consumers to deliver products and services (Ladd 2018). The value propositions are delivered to consumers through communication, distribution and sales channels (O’Neill 2015).

**Customer Relationships:** Through the channels mentioned above, companies establish customer relationships (Ladd 2018), which are maintained with each segment (O’Neill 2015).

**Revenue Streams:** Revenue streams are a result from value propositions (O’Neill 2015). The streams are one-time or recurring transfer of money from customers to the company. Revenue streams are based on an asset sale, usage fee, subscription, lease, license, commission or advertising. The revenue stream element also encompasses pricing mechanism (Ladd 2018).

**Key resources:** Are the assets which are required to offer and deliver the elements mentioned above (Ladd 2018; O’Neill 2015).

**Key activities:** The key resources support companies' key activities in production of goods or and services, solving problems or constructing platforms which underline companies value propositions (Ladd 2018).

**Key partnerships:** Due to big data and technology advancements, companies are increasingly establishing new key partnerships (Ladd 2018) to improve efficiency. Therefore, some activities are outsourced as some resources are acquired outside the company (O'Neill 2015).

**Cost structure:** Business model elements result into cost structure (Ladd 2018; O'Neill 2015).

### 3.2.5. Implementing data- marketing models

The digital technology developments in data analytics permits different kind of companies to become data-oriented (Erevelles et al. 2016). Kumar (2015) agrees that marketing functions are constantly evolving and developing towards integrated approach aiming at efficiency and effectiveness. Johnson et al. (2019) introduces the five stages of data-marketing implementation to address the important question: how to best capture, integrate, analyze data to marketing decisions using emerging technologies and techniques. The five stages data-marketing implementation are presented in Figure 8. and further discussed in detail below.

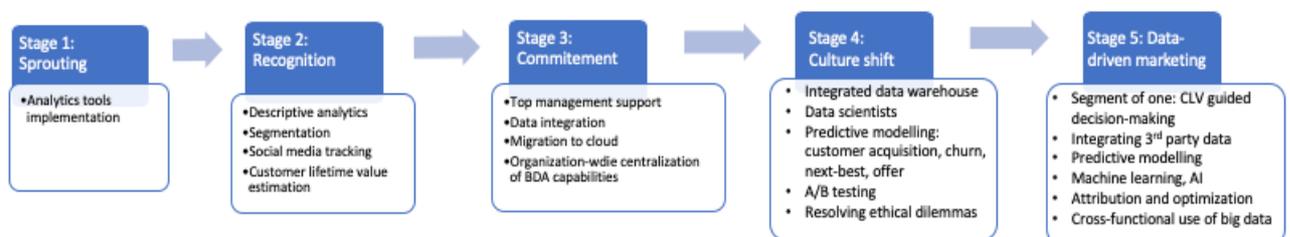


Figure 8. The five stages data-marketing implementation (modified from Johnson et al. 2019)

To begin with, marketers are negotiating a number of tools, techniques, building internal technology capabilities, shifting existing capabilities to cloud-software. Also, teams are created with equal knowledge of analytics and consumers (Johnson et al. 2019). Hence, data analytics are guiding companies' operations today, aiming to maximize performance and effectiveness of marketing efforts (Sharma & Sheth 2004). Also, Erevelles et al. (2016) view data utilization in marketing functions as the primary source for competitive advantage. Thus, as Johnson et al. 2019 suggest successful implementation to involve sharing and shifting

responsibilities between marketing and IT departments making it essential for managers to solve how new responsibilities are to be allocated among functional areas.

The rapid technology advancements and new concepts (Edeleman & Singer 2015; Kumar 2015; LeeFlang et al. 2014) from Google Analytics to machine learning, predictive modelling and marketing automation force marketing managers to understand and implement all these tools and techniques (Johnson et al. 2019). Marketing departments attempt to quickly learn and develop required assets (Davenport et al. 2001; Erevelles et al. 2016; Sheng et al. 2017) by hiring consultants, recruiting skilled expertise and evolving the skillsets of current employees (LeeFlang et al. 2014). Therefore, Johnson et al. (2019) consider useful for marketing managers to understand the approach that they take in the implementation of big data analytics. Moreover, if the approach is consistent with particular phases of development consequently, if some factors are more crucial in terms of success during the different phases of implementation. Teece (2010) claims the design of business, implementation and the refining of commercially viable business models for revenues and costs are critical to company success.

The first stage towards data-driven marketing is according to Johnson et al. (2019) *sprouting*. Companies start to implement marketing analytic systems into daily operation. Sprouting begins with a turnkey application such as Google Analytics (Chaffey & Patron 2012; Johnson et al. 2019) as it provides a series of data and is free of charge (Plaza 2011). Many simply begin implementation by tracking e.g. number of visitors (Plaza 2011) thus not understanding the reasons behind data (Davenport et al. 2001; LeeFlang et al. 2014; Plaza 2011; Wedel & Kannan 2016). Marketers who best prove the value of analytics are the ones that provide solutions through analytics and attract the attention of top managers (Chaffey & Patron 2012; Johnson et al. 2019). The novel efforts towards data marketing goes beyond the organizational core increasing the support for asset commitments to data driven marketing. Johnson et al. (2019) suggest the early success of analytics implementation requires to rapidly determine altering interests of internal consumers. The main pitfall in the first stage for managers is to become bewildered by the rapid pace of change. Which according to Johnson et al. (2019) may lead to outsourcing marketing analytics, undermining the learning process as well as the experimentation and customization mandatory in the progress of data marketing.

In the *recognition* stage, the efforts of analytics (Johnson et al. 2019) begin to show results and different segments begin to understand the significance of investments in big data analytics in terms of growth (Järvinen & Karjaluo 2015; Wedel & Kannan 2016). Decisions are often influenced by consultants (Johnson et al. 2019) explaining the journey to become data-driven (Johnson et al. 2019; LeeFlang et al. 2014). This stage includes the progression to descriptive analytic methods (social media tracking, cluster segmentation and customer lifetime value estimation) which yet, are merely based on assumptions not accurate estimates. (Johnson et al. 2019). Thus, starting to appreciate the analytics required to enhance marketing activities (Chaffey & Patron 2012) as big data analytics are increasingly becoming the critical element in organizational success (Sheng et al. 2017).

In the third stage *commitment*, the support of top managers is manifested through investments in data warehouses (Johnson et al. 2019) and hiring analytic consultants and experts (LeeFlang et al. 2014). Attempts are made to widen analytics from a solely marketing capability to an organizational capability as the priority is to fill the analytics skills gap (Johnson et al. 2019). According to Erevelles et al. (2016) and Sheng et al. (2017) business intelligence is generated through analytics by combining big data with advanced analytics techniques to generate valuable knowledge from the data (Järvinen & Karjaluo 2015; Wedel & Kannan 2016). Hence, Sheng et al. (2017) suggest that it improves companies' business and operational intelligence capabilities. Moreover, companies begin to trial new data-driven strategies to enhance business models in the big data environment. Thus, Johnson et al. (2019) considers strong emphasis on short-term goals as a likely pitfall.

After hiring analytical consultants, investing in analytics and achieving appreciation towards analytics, shifting towards data-driven organization, a *culture shift* is required (Johnson et al. 2019). Diaz, Rowshankish & Saleh (2018) and Goran LaBerge, L. & Srinivasan (2017) acknowledge the difficulties in implementing big data analytics which attributes from the failure in creating data culture within a company to integrate analysis and decision-making. Hence, Kumar et al. (2013) agree that data-driven marketing requires a fact-based view from companies in decision making through continuous learning and investments in digital analytics (Erevelles et al. 2016; Sheng et al. 2017). It is essential to value employees with analytical and business skills (LeeFlang et al. 2014) and to share data within a company (Kumar et al. 2013). Yet, at the core is to treat consumers according to their profit potential (Johnson et al. 2019).

In the final phase, companies reach the mature stage of *data-driven marketing*. Data-driven companies identify microsegments from their customer database through integrated transactions, clickstreams and third party provided data. Moreover, advertising is optimized through various channels to target effectiveness as consumer selection and the refining of offers is done using predictive AI algorithms. (Johnson et al. 2019) Advanced data-marketing companies apply big data analytics across all departments (accounting, logistics, production, sales etc.) not just marketing (Barth & Bean 2012; Erevelles et al. 2016; Sheng et al. 2017). Utilizing real-time analysis of data moving access to results all functional areas where operational decisions are made by middle managers and lower-level employees (Davenport et al. 2012; Johnson et al. 2019).

### 3.3. Theoretical conclusions

Digitalization, data and the increasing advancements in technologies are highly impacting marketing (Azadi & Rahimxadeh 2012; Leeflang, et al. 2014) and transforming business models in order to meet the changing needs of customers (Sedra 2016; Zhao et al. 2013). Digitalization forces companies to improve efficiency and effectiveness to survive in the competitive markets. Figure 8. sums up the multidisciplinary approach of this theoretical section. Traditional marketing models are transforming to respond to the needs of digitalization. According to extant literature data-driven marketing can be defined as the means of utilizing the following assets; various delivery channels and creative content that is relevant to each consumer, aiming for establishing and growing relationships that are mutually beneficial for the marketer as well as for the consumer.



Figure 9. Theoretical Multidisciplinary approach

Marketing managers view data-driven marketing and marketing BDA as decision-making tools as capabilities providing insight on innovation, marketing strategy and brand building. Data-

driven marketing encompasses big data environment and marketing analytics, and the required skill sets for marketers (Johnson et al. 2019; Van Bruggen et al. 2001). The improvements in data integration and analysis are enabling the precise attribution of marketing spend is increasing the accountability of marketing departments. Data analytics is considered as the solution in justifying marketing actions (Johnson et al. 2019). The utilization of data to meaningful insight is a process of collecting, managing and analyzing data.

RBT argues that managerial and organizational processes are crucial in exploiting resources. Furthermore, each related theory (dynamic & adaptive capabilities) complements RBT through a unique view on the effectiveness of these decisions and processes (Day 2011). Moreover, Kozlenkova et al. (2014) suggest that companies fail to exploit their resources when managers lack required capabilities and information in maximizing resources. Hence, a company with strong dynamic capabilities is capable to profitably build and reform its assets, reconfiguring them in a way required to innovate and respond to market changes (Teece 2018). According to Kozlenkova et al. (2014) data-driven marketing requires diverse market-based assets such as marketing, technology, R&D capabilities and innovation. Furthermore, information technology, analytical capabilities, marketing data and knowledge are improving the quality of data-driven marketing (van Bruggen et al. 2001). However, a clear gap exists how companies should develop, innovate and implement data-driven capabilities and processes to compete in the new data-driven environment (Davenport et al. 2001; Wedel & Kannan 2016).

Business model innovation is defined as the novel way of creating and capturing value by changing components in a business model. Today data-driven marketing is highly impacting the transformation of business models as data-driven business models are emerging companies are forced to embrace big data, adopt advanced information systems to improve their decision-making process (Sheng et al. 2017). Furthermore, big data enhances business model innovation with data and digital transformation. The extant literature has stressed business model innovation to be formidable source of competitive advantage highlighting the role of top managers (Parnell et al. 2017; Robertson 2017; Seddon 2014). As Zhao et al. (2013) suggest both human and social capital of top managers are necessary in business model innovation. Companies exploiting big data transform businesses by rearranging resources and capabilities (Zott & Amit 2017).

## **4. RESEARCH DESIGN AND METHODS**

A qualitative research method was chosen for this study as the main goal was to deepen knowledge on data-driven marketing and to identify the required resources and capabilities to develop data-marketing business models. Qualitative research method is merely used in building and testing theories on topics with limited knowledge (Creswell 2014; Shah & Corley 2006). The knowledge on business model innovation in the context of data-marketing has limited scientific research. Therefore, a qualitative research is useful in theory building and providing guidelines for future research. Furthermore, qualitative research enables holistic understanding of complex processes around a topic (Shah & Corley 2006).

Qualitative method supports the goals of this research allowing descriptive and in-depth analysis on the topic. It focuses on deepening understanding and knowledge of the phenomenon, identifying structures and reasoning behind the challenges that are not yet entirely understood (Metsämuuroinen, 2011, 220). Saunders et al. (2016, 165) agree exploratory research to be extremely useful when the goal is to clarify and understand a certain problem or phenomenon having the advantage of being flexible and adaptable to change (Saunders et al. 2016, 177) which may contribute in developing new aspects during the study that were not taken into consideration initially (Creswell 2014).

### **4.1. Research approach and design**

Eisenhardt (1989, 534) defines case study strategy as a research strategy which focuses to understand *the “dynamics present within single settings”*. Case studies are utilized in data collection using various methods such as interviews, questionnaires, observations and archives. The case study is useful for theory development as it helps to validate concepts and identify new variables and hypothesis (George & Bennett 2005). Case study strategy can be conducted as single or multiple cases.

This study used multiple case-study and the data was collected through interviews. Research objectivity can be increased using multiple-case strategy over single as it considers various perspectives, discovering similarities and variations between multiple cases (Yin 2009). Multiple case-study was chosen as the primary objective is to deepen insight into data-driven marketing and to increase knowledge of how companies innovate and develop data-driven

marketing models. Saunders et al. (2016, 146) agree that multiple case study provides a flexible structure ensuring a comprehensive overview of key themes as adapting to anticipating insights.

According to Yin (2014, 45) the replication logic should be utilized in demonstrating the validity of the research when applying multiple-case study strategy. Moreover, multiple-case study enables an inductive approach. Therefore, confirming multiple-case study as the research approach for the following reasons. First to identify the required resources and capabilities in business model innovation in the context of data-driven marketing. Secondly, to reduce the risk of drawing conclusions based on a single perspective. Furthermore, according to Saunders et al. (2016, 146) limited scientific research is done on data-driven marketing no comprehensive theory can be utilized in understanding the external validity.

### **4.3 Research context**

According to European Commission (2019) Finland is within the top two leader countries in innovation in the European Union, right after Sweden. Furthermore, Finland has high levels of innovation, human resources in technology, R&D, marketing and organizational innovation. The European Commission (2017a) listed the main business trends; big data, workplace innovation and innovative business models among others. Firms driving the aforementioned trends are able to address various challenges with innovative solutions. Thus, new business models and processes need to be tailored within a company by ensuring appropriate education of staff and financial resources. Leeflang et al. (2014) and The European Commission (2017b) acknowledge the skills gaps in applying data-driven marketing.

The case corporation and the interviews of this study are briefly described below. The context of this research was to identify the required resources and capabilities to develop and innovate business models in the context of data-marketing being crucial to gain a deep knowledge on data-driven marketing. Also, to understand the relationships between capabilities and successful business development. Furthermore, to understand the similarities and differences of data utilization in B2C and B2B sectors.

## 4.2 Data collection

This study utilized purposive *sampling method*, meaning the selection of the sample was guided by the objectives of this study as well as the prior knowledge by the researcher (Tansey 2007) on the case companies. The first selection criteria was finding Finnish marketing companies. Secondly, to gather companies with varying resources, capabilities, size and varying stages and purposes of benefiting data-driven marketing to generate a comprehensive view of the phenomenon. Consequently, to compare the results and analyze if the answers varied depending on the company size, sector, resources and capabilities.

Interviews are the primary qualitative data collection method used in case studies (Creswell 2014). Data was collected through interviewing data, strategy and marketing managers from the case companies. Interviews allow the researcher to control questions in turn, interviewees answer open ended structured questions based on their prior knowledge and perceptions. This study used the *elite interviewing* -technique as the interviewees were chosen on the basis on who obtain the most knowledge on the topic (Tansey 2007). This data collection method is commonly used when confirming what has already been established (Tansey 2007) or in generating novel information on the phenomenon to further the research process (Saunders et al. 2016, 375)

The sample of this study includes four Finnish companies operating in the media and marketing sector. The company names were changed to protect their privacy. All case companies represent a different marketing sector, which is shown in Table 2. Moreover, the interviewees backgrounds differ regarding their knowledge, education and work experience of data-driven marketing. Three small-sized companies and one of them is a stratp up and the fourth company is a large media corporation, the parent company of all three marketing companies. The interviewees were selected based on their position, job description and knowledge on data-driven marketing. The participants were expected to obtain good knowledge and insight on data-marketing and to occupy a strategic position in the marketing or technology department hence, the interviewees mainly represent manager and director positions.

The interviews were conducted via Google Hangouts Meet due to the current COVID-19 situation. The interviews were held in March and April 2020 during weeks 13-15. All

interviews were done privately and the length of the interviews varied depending on the participant from about 45 min to one hour. Table 2. summarizes the details of the interviews.

Company name	Interviewees	Position	Industry	Length	Interview method
<b>Company A</b>	Interview 1	Brand and Culture Director	Media	56 min	Google Hangouts Meet
	Interview 2	VP / Content Marketing		54 min	Google Hangouts Meet
	Interview 3	Insight Manager		48 min	Google Hangouts Meet
	Interview 4	Data Business Director		56 min	Google Hangouts Meet
	Interview 5	Data Architect		1 h 3 min	Google Hangouts Meet
	Interview 6	Development and Technology Director		53 min	Google Hangouts Meet
<b>Company B</b>	Interview 7	Chief Operating Officer	Marketing	46 min	Google Hangouts Meet
	Interview 8	Chief Financial Officer		44 min	Google Hangouts Meet
<b>Company C</b>	Interview 9	Strategist	Influencer marketing	53 min	Google Hangouts Meet
<b>Company D</b>	Interview 10	Senior Digital Marketing Specialist	Digital marketing	36 min	Google Hangouts Meet

Table 2. Interview details

The interviews utilized semi-structured interview type where topics are pre-selected but accurate format or order of the questions are adapted among each interview (Metsämuuroinen, 2011, 247; Saunders et al. 2016, 390), enabling specifying and deepening questions (Tuomi & Sarajärvi 2018, 65). The aim of the questions was to cover the interviewees perceptions of data-driven marketing identify the key resources and capabilities in business model innovation in the context of data-marketing as well as to gain insight on how data-driven marketing is applied in within a corporation. The interview questions were designed to cover all themes of this study and were modified and adapted from the interview base shown in Appendix 1.

#### 4.4 Data analysis

To aid the data collection and analysis process, the interviews were recorded and further transcribed into text. Subsequently, each interview text was proofread and summarized to gain a comprehensive and general overview of the interviews.

Qualitative and case study methods provide various analysis techniques which can be utilized in business related case studies (Alasuutari 2011, 26; Eskola & Suoranta 1998, 116). Eriksson and Kovalainen (2008) suggest case study analysis to begin with separate analysis of each individual case – within-case analysis, followed by cross-case analysis, which compares the similarities and differences across cases in contrast to theory. According to Yin (2002) different

analytic methods can be utilized in case study analysis. For this study thematic analysis method was chosen as it enables comprehensive descriptions of collected data and identifies different aspects of the phenomenon. Themes are further examined using the theoretical framework (Farquhar, 2012). Emphasizing themes, issues and challenges and conceptualizes categories (Eriksson & Kovalainen, 2008). The analysis was completed manually.

#### **4.5 Reliability and validity**

It is important to discuss the reliability and validity of the research design when evaluating the credibility of the study's results. Hence, Yin (2009, 40) acknowledges how the quality of the case study can be evaluated using four tests: *construct validity*, *internal validity*, *external validity* and *reliability*. Construct validity increases when multiple sources of evidence are used to establish a chain of evidence. This study gained multiple evidence sources by interviewing people in various position from several companies.

The internal validity is to be recognized when studying causal relationships (Yin 2009, 41-43). However, this study aims to identify the assets needed in business model innovation, not to explain why X leads to Y. The reliability of a research refers according to Saunders et al. (2016, 202) to replication and consistency. However, as the nature of this study is exploratory and conducted as semi-structured interviews, it may affect the replication. Other important aspect of reliability is the transparency of data analysis (Saunders et al. 2016, 156) As according to Yin (2009) the primary objective is to minimize faults and biases. The interviews were recorded to increase the reliability of this study.

## 5. FINDINGS

The following chapter discusses the findings from the empirical research starting with brief case company introductions. Section two covers the perceptions of data-driven marketing and provides an analysis on the data-driven marketing process in the corporation. The third section analyses the required resources and capabilities in business model innovation in the context of data-marketing and the enablers of data culture within a corporation. The fourth section describes the findings on business model innovation and how data-driven marketing is applied and implemented. Final section presents the benefits and challenges of data-driven marketing.

### 5.1 Case Companies

All companies reported to be in the early stages of applying data-orientation, data-technologies and data-marketing.

**Company A** is one of the largest media companies in Finland and the corporation's parent company. The company was founded in 1900's century and serves both B2C and B2B customers. Providing local content and services such as non-affiliated daily newspapers. Additionally, the company provides data and marketing services. It employs about 800 people and has 15 media subsidiaries and three marketing subsidiaries. Their turnover in 2018 was 69 million euros.

**Company B** is a small digital marketing affiliate platform company founded in 2016. The largest local marketplace for local services. The company unites B2B and B2C customers, thus main customer base consists of B2C customers. The company employs about 20 people and their turnover was in 2018 1,5 million euros.

**Company C** is specialized in influencer marketing, operating in the B2B sector. The company has about 20 employees and their turnover was 2,3 million euros in 2018. The company was founded 2009.

**Company D** is a specialized in digital and media marketing. Providing digital and data-marketing services and solutions in the B2B sector. The company was founded 2012 and currently employs about 40 employees. The company's turnover in 2018 was 4,1 million euros.

## 5.2 Data-driven marketing

The extant literature defines marketing as an extensive concept having no generally accepted definition. Mroz (2011) claims that marketing has as many definitions as many people are asked to define the concept. The disparities in definitions of marketing and data-driven marketing were covered in the theoretical section. As discussed, Kumar et al. (2013) views data-driven marketing as a way to utilize data in marketing by informing and optimizing the ways how marketing activities are conducted. Thus, data-driven marketing can also be defined as information technology enabled marketing managing big data (Strong et al. 1997). In turn, some scholars (Johnson et al. 2019) define data-driven marketing from big data analytics perspective. Due to the differences in definition, the purpose of this section was to cover the interviewees perceptions on data-driven marketing.

Interviewees were asked to freely define data-driven marketing. According to results all interviewees agree data-driven marketing to be clearly a current trend offering various opportunities and benefits. *Companies A and B* note that fundamentally all marketing and business activities today should be based on data. Furthermore, Interviewee 4 adds that marketing strategies are always built on data-based research and data-driven information, quantitative or qualitative. Thus, developing data-driven capabilities and applying data-marketing can be challenging. Interviewee 3 commented, the overload of data has challenged companies in employing the collected data and to benefit from it. Nonetheless, “*we have made substantial developments to utilize vast data sets, learn to use and analyze*” (Interviewee 3).

Fundamentally data-driven marketing refers to data and fact-based decision making. Moreover, the results show the importance of data-driven approach in collecting and analyzing the data which managers base their decision-making. All marketing and strategic related decision are based on authenticated data rather than gut feeling. “*It is truly facts where these decisions and actions are based on*” (Interviewee 2). Data-driven marketing increases the credibility and reliability of marketing departments’ actions, offering insight on which marketing activities work and where to allocate resources. This enables enhanced decision making and more relevant and optimized marketing activities leading to increased effectiveness and efficiency. Interviewee (6) adds to discussion the different steps of data maneuverability to progress from reactive and diagnostic to predictive and prescriptive decision support and automation.

*“The more everything is digitalized, the more extensive data utilization is possible. In every stage of the marketing funnel we see which versions resonate better or worse, then with enhanced marketing systems and technologies we can even automate the decision making e.g. with A / B testing”* – Interviewee 2

Interviewee (6) agrees, the understanding received from data guides business decision-making. Thus, the results show all participants agree that human knowledge and capabilities are needed. From a broader perspective, the companies consider data-driven marketing as enhanced knowledge management. The key features of data-marketing are collecting managing and utilizing data more effectively efficiently. Furthermore, to base decisions on the insight and knowledge gained from the data collected. Interviewees (1) and (8) acknowledge, data-driven marketing to some degree has always been done thus, today it is conducted in real time based on larger data sets and in a more effective and efficient way. Knowledge management in marketing designates the better consumer understanding companies gain, the better value can be offered through marketing activities. This in turn, increases consumer knowledge and permits more relevant and efficient marketing means.

*“For us, the biggest change with data is the real-time nature of information and the fact that it is available all the time. We constantly collect, view, track, consumer data, how consumers behave, how they buy, what they like and based on that we are able to instantly lead our marketing efforts.”* – Interviewee 1

The results suggest the primary theme in data utilization was increasing customer knowledge being consistent with theory. Companies A, B, D explained, *“the aim is to find out the kind of customers we have, what are they interested in buying and what they have previously purchased online”*. All companies collect consumer data, examine online behavior and buying personas. By collecting, managing and utilizing data companies aim to provide products and services that interest customers. Interviewee (2) highlights the customer-centric approach in data-driven marketing since traditionally marketing has been more product-oriented.

*“Data-orientation begins with analyzing consumer markets to gain insight on the elements which increase the customer value”.* – Interviewee 2

The results show the importance to understand how data relates to company's business. Hence, the marketing funnel is to be divided into sections and the most effective metrics must be defined for each step. For this Company A uses the REAN-model (Figure 10) which is one way to structure data-driven marketing. "The REAN-model is just one definition which creates a frame of reference to explain data marketing" (Interviewee 5).

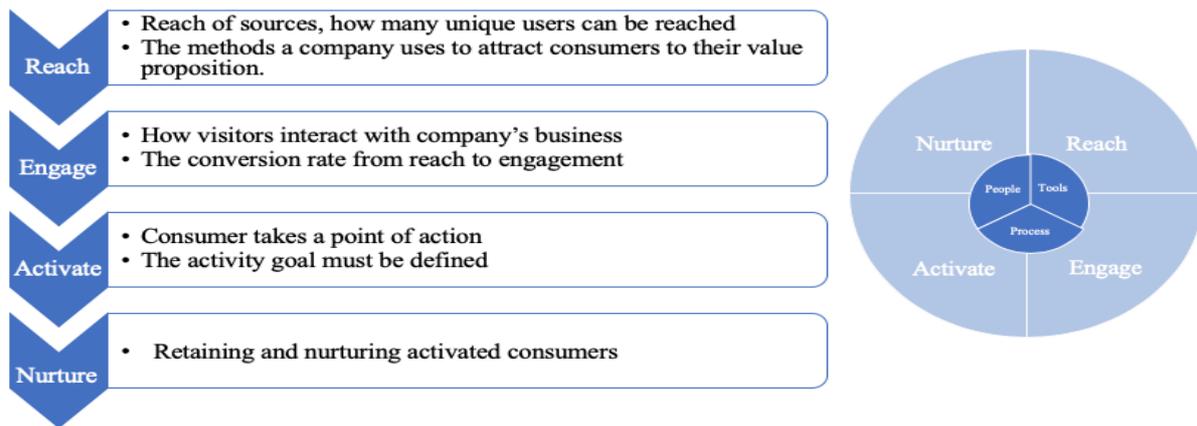


Figure 10. REAN-Model

*Reach* describes the number of unique users reached. Furthermore, the sources and methods used to attract consumers to companies' value propositions. *Engage* refers to the number of users reached that commit to the content. From marketing perspective conversion rate explains how the company has managed to create content to which consumers start interacting with. Subsequently, in the *activate* phase the goals must be clearly defined. As the objectives define what is the A:s measurable element when a consumer takes a point of action e.g. subscribe for newsletter or make a purchase etc. Interviewees (1) and (5) agree *nurturing* to be the most important phase in the funnel explaining how to nurture activated consumers to repurchase. Data needs to be utilized effectively in the nurture phase in order to get returning customers to reactivate again.

The definitions uncovered that data-driven marketing is strongly connected to marketing technologies. According to the findings, all companies view technology infrastructure and marketing technologies as enablers for applying data-driven approach in marketing. The enhanced technology solutions play a huge role in data-marketing and knowledge management. According to Interviewee (4), the response speed has increased enabling personalized marketing which would be impossible without today's technology. Furthermore, the data

collection, management and marketing analytic technologies are the foundations for developing data-driven marketing models. Marketing automation technologies allow companies to track consumer behavior after visiting company website or subscribing for newsletters and then to collect, store and utilize the data in marketing activities. Thus, Interviewees (4) and (10) acknowledge the future changes by Google to cookie policies regarding consumer data collection which is speculated to modify data-marketing.

**5.2.1. Motives and objectives in applying data-marketing**

Company A has a clear vision to become data oriented “we are bringing our data and artificial capabilities to world class levels.” They are developing extensive data assets accumulated for the corporate family by exploiting artificial intelligence into an understanding and efficiency that can be utilized. With that understanding future media and marketing services aim to provide increasingly relevant content and more effective marketing extensively across various channels. “The goal is to become holistically data-driven, so that within the corporation everyone has the capability to utilize data” (Interviewee 3).

This research identifies six main motives in innovating and applying data-driven marketing; *increased consumer knowledge, marketing measurements, better decision making, efficient marketing, marketing automation, better productization and commercialization*, which are shown in Figure 11. All of the aforementioned motives are interconnected. The primary motives for data collection and applying data-driven marketing were indisputable, thus certain disparities could be detected among B2C and B2B sectors in terms of why data is collected.

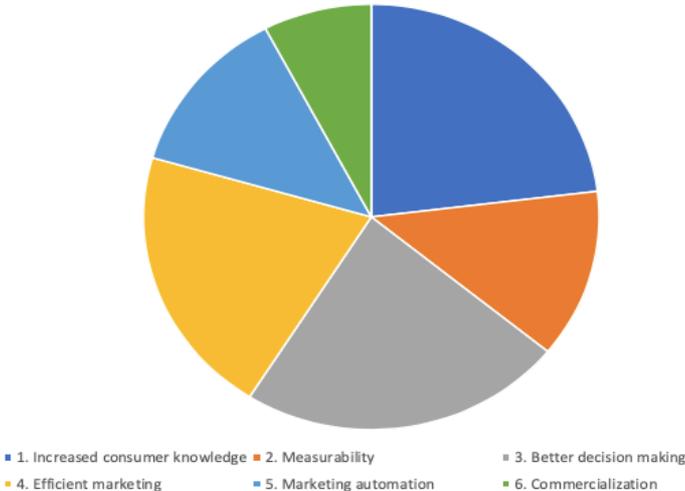


Figure 11. Motives for Applying Data-marketing

Figure 11. shows that increased consumer knowledge was considered as primary motives for applying data-driven marketing. Data enables companies to better understand their customers by offering valuable insights into consumer interests, purchase history, demographics etc. which in turn, leads to better decision making. Furthermore, to truly understand consumers preferences, desires and needs to develop companies' offerings accordingly which results in better conversion rates. Interviewees (2) and (6) acknowledge data utilization in developing customer purchasing path. Data is collected from each step and offers valuable insight into further evolving the purchase path to increase conversion. Increased consumer knowledge also results into better segmentation and more accurate targeting.

*“Data utilization creating understanding is definitely the most important thing in any business segment” – Interviewee 5*

To enhance decision making, marketing needs to be measured. Interviewees (8) and (9) agree, that in order to allocate resources efficiently, marketing activities need to be measured. The results support Kumar et al. (2013) and Järvinen & Karjaluoto (2015) of the importance of measurability in data-driven decision making. In digital marketing everything can be measured therefore, it is possible to improve decision making and to track the direction of actions. In general, data is needed to prove the department's ability.

All participants consider marketing technologies as an enabler for data-driven marketing. Especially marketing automation was viewed as primary motives to apply data-driven marketing. With the help of marketing technologies marketing processes, data collection, data management and reporting can be automated (Interviewee 3).

Enhanced productization and commercialization both in the B2C and B2B sector was noted by Company A. Interviewee (2) comments, *“with increased consumer understanding, we are better in commercializing products and services”*. According to results, Company A is the only one reporting that they are aiming at commercializing the data. Utilizing data not only in their core business but to offer marketing services for B2B customers. Collecting vast amounts of consumer data provides the opportunity to market data and consumer insight to B2B sector. *“We are able to increase our advertiser customers' marketing effectiveness”* (Interviewee 3).

The results show the main motives for applying data-marketing are better decision making and more efficient marketing offering fact-based decision making based on insights gained from collected data. Increased consumer knowledge, accurate marketing metrics and enhanced decision-making results in more relevant, targeted and mainly in more effective and efficient marketing, saving time and resources.

**5.2.2 Data collection**

Theory mentions that novel data sources, tools, channels and analytics are changing the marketing process (Edelman and Singer 2015). According to several authors (Chiehyeon et al 2018; Gandomi & Haider 2015; Järvinen & Karjaluo 2015; Wedel & Kannan 2016) the utilization of data into meaningful insight is a process of collecting, managing and analyzing data. The purpose of this chapter is to bridge theory and practice, to deepen knowledge on how data is collected, managed, analyzed and utilized within a corporation. During the empirical section of this study, the participants were briefly requested to describe how marketing is conducted (corporation, company, campaign, etc. level) and how data is involved. The aim was to discover where data is collected and stored, the differences between B2B and B2C sectors on what kind of data is collected and lastly, how is data utilized. Figure 12. presents the corporations data process; data sources, collection, management, analytics and utilization.

*”Miilu is a large data storage entity where digital development team vacuums data from all systems – a large entity we have built.” – Interviewee 3*

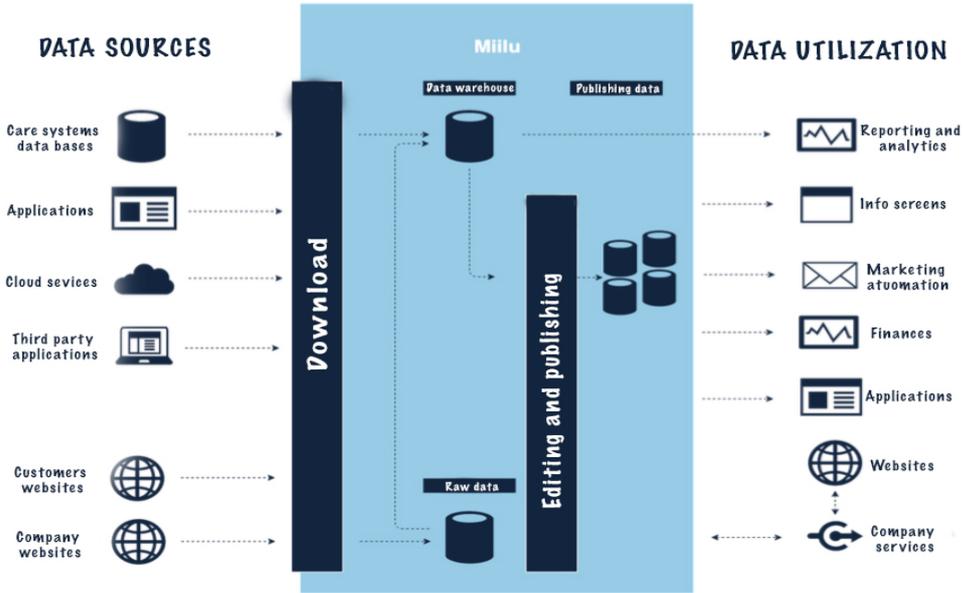


Figure 12. Data process (modified from company A training material)

The evidence suggests that Company A has the most resources to collect data from various sources in comparison to smaller sized companies. *“We collect data from all channels we can just think of”* (Interviewee 5). Interviewees (3) and (4) clarified, data is collected from just about every place where it can be, from own as well as third party channels confirming Kumar et al. (2013) theory that the evolvement of technologies, data collection and storing has become easier and more affordable. Thus, the evidence suggests primary data collection channels are own digital channels such as websites furthermore, click streams from websites, social media applications, e-mail newsletters and customer register and CRM softwares.

Companies capture and collect ever-increasing volumes of raw data through digital platforms (Amado et al. 2018). The findings indicate the theoretical assumptions to be valid. *“We are collecting vast amounts of data, since we aim to grow our data and analytics services”* (Interviewee 2). Additionally, interviewee lists different data collection channels *“network services, websites, customer registers, all other softwares we have in use, so the data accumulates from various sources continuously* (Interviewee 3)”

Thanks to digital media, companies are forced to collect data from multiple sources (search queries, clickstreams, social media, website, e-mail, search engines, navigation paths on websites etc.) (Järvinen & Karjaluo 2015; Kumar et al. 2013). According to results the primary data collection sources are indisputable. All participants consider website as the main data collection channel. Thus, for Company A the primary data sources are their medias’ websites, not the company’s own furthermore, the clickstream data (Interviewee 5). In addition, valuable data sources are press, blogs and own Android and IOS applications as well as third party applications used. The findings indicate that the companies collect data from different third-party applications e.g. Facebook, Instagram, Youtube, Tik Tok and Twitch.

Despite the aforementioned channels, Company A explains that parts of their data generation are outsourced. Third-party external data sources are utilized to conduct e.g. marketing analysis. Moreover, external data sources can be purchased or to utilize and combine free data sources available with company’s own data sources. Interviewee (4) describes it to be very typical to combine third-party data sources in the B2B sector. In B2B client projects the client’s data platform is combined (anonymously and according to GDPR) with Company A database.

Interviewee (6) adds, they acquired box-database from the Bureau of Statistics enabling them to combine geographical dimension with data.

Subsequently, the interviewees were asked to define the kind of data they collect. In the theoretical section it was discussed, the explosion of data from various digital channels and sources has enabled consumer data tracking (Kumar et al. 2013) which according to empirical findings is the most valuable data collected. Therefore, it is evident (Carnevali et al. 2017; Kumar et al. 2013) for data-driven marketing to obtain a customer centric approach. Company A obtains vast amounts of data on our newspaper and magazine readers, mainly behavioral data. Consumer data is collected through all possible internet sites clickstreams and applications. Interviewee (8) clarifies, *”what the user purchases, how much, where, how often it visits the website and from where it came from”*.

*“The subscribers’ behavioral data, e-commerce behavior (what they purchase, how they pay), social media behavior, marketing newsletter subscribers’ behavioral data”*. – Interviewee 5

In addition to consumer data Company C collects influencer data from various sources. Interviewee (9) further describes, that the company collects more personal influencer data through Woomio which processes the data even further. Both Company A and C utilizes Adform which collects reading times from blogs and press.

Figure 12. demonstrates how data is stored within the corporation. “Miilu” is used to describe the corporation’s whole database warehouse system. *“The data warehouse consists of numerous systems and softwares collecting the data which eventually is stored into Miilu”* (Interviewee 3). The following systems Vainu, Vuolu, CRM, ERP systems, Pipedrive, Commerce and other cloud services are used to collect and store data.

*“Marketing automation will be integrated with CRM, offering insight on what B2B customers react to, sites visited etc.”*. – Interviewee 2

The findings indicate that it is common for all smaller-sized companies to mainly utilize free databases such as Google Analytics and applications own business managers. Interviewee (10) describes they collect and store data with Google Ads and Analytics combined. Company C

stores data to Woomio, Adform, Google Analytics and Facebook Business Manager. Google analytics and Facebook Business Manager are also used in Company B. Additionally e-commerce data is stored into LSQ database. On the other hand, e-commerce data is also collected by Snowflake-tool replicated and stored to the corporations governed data warehouse Miilu. According to findings it is evident that smaller companies with limited resources mainly use Google Analytics in collecting and storing data. Nonetheless, Company A obtains the resources to build a more complex data infrastructure which all subsidiaries can then benefit from.

### ***5.2.3. Data management and analytics***

Interviewee (6) defines big data followingly: *“data is all kind of bits collected in various forms into some kind of software, however managing data into something that can be utilized is the tricky part.* Fundamentally data comes through various systems and softwares in a raw form hence, the data team’s task is to edit the data into a more analytically friendly format. Gandomi and Haider (2015) consider marketing analytics as techniques used to analyze and generate insight from the big data collected and managed. The primary aim is that anyone within the organization is able to conduct analytics and reporting for own needs enabling self-service analytics.

*“My job is to enable channel independency from the channel input perspective, additionally we are channel independent on the right side (channel output) being able to export the data, wherever we need it” – Interviewee 5*

During the data management and analytics phase the main objective is to further process and enrich collected data and develop relevant data (Interviewee 7) for utilization phase. Interviewee (2) adds that there is vast amount of data available and the aim is to enrich the data to continuously gain improved insight into consumers and result to actionable knowledge. Furthermore, during the management process the collected data from clickstreams can be enriched by combining it with demographic data to provide even more valuable insight under the laws of GDPR (Interviewee 6).

Data is collected through various channels and before each channel reported as its own being insanely challenging to create a single dashboard view. However, today companies are able to build complex data studios. Interviewee (5) explains the data team's task has been creating policies and conditions to integrate all possible data sources and to produce data assets from them. Interviewee (2) mentioned they exploit *Agency Analytics* which enables the analysis of all digital marketing customers' data sources from one place.

*“The data team does data integration utilizing existing services and some by hand coding on the frontier of Miilu. Data assets are generated and can be further utilized in different channels”.* – Interviewee 5

The findings indicate the importance of data visualization which already increase the value of data. *“E.g. in customer base analysis data visualization is exploited in describing the kind of customers a company has, since typically the B2B customer already obtains information on company, size, industry, purchasing power and demographic data”* (Interviewee 4). Hence, visualizing data is often the first step in data management. Tableau is the data visualization tool used in the corporation. Additionally, data can be processed with traditional regression and correlation analysis. Typically, these are utilized in finding deviations from data sets as well as in customer segmentation and grouping.

#### **5.2.4. Data utilization**

The findings show that data utilization varies among B2C and B2B sectors. Data is exploited in numerous ways depending on the occupancy e.g. insight manager utilizes data in research (market & customer research) from which different types of data are then collected. In turn, data architect utilizes data in technology development and interviewees (1), (7), and (9) in marketing and overall business decision-making.

Regarding data utilization in the B2C sector the following themes came up; better decision-making, product and service development and innovation, enhanced marketing campaigns, thus the results were fairly expected in the light of theory. The results confirm that data is utilized in all business areas; company training, finance, accounting, internal analytics, marketing, marketing automation, online and consumer analysis – just to name a few.

Thus, Interviewee (5) points out the importance of understanding where and how data is utilized therefore, extensive purpose listing regarding data utilization was conducted. The findings reveal content analytics to be the primary use of data. Additionally, Interviewee (6) discussed customer segmentation guiding the purchasing path at different stages and marketing data is exploited in re-marketing to gain a deeper understanding of consumers and consumer segments.

*“E.g. we read Company C:s Pipedrive data into Miilu and conducted analytics on the data and shifted back to Pipedrive, allowing customer segmentation, data utilization in generating categories for websites e.g. most read”*. – Interviewee 5

Interviewees (1) and (9) confirm data to be utilized in business innovation, personal and customer level development and helping companies to grow and conduct superior marketing. Marketing department strongly utilizes data in marketing campaigns. Not only to understand which campaign worked but furthermore, to understand the reasons behind it. *“With this understanding we are able to streamline operations and increase sales”* (Interviewee 1).

*“We aim for rapid decisions based on data”* (Interviewee 7). Data is exploited in decision-making as it results in more profitable actions. Enhanced consumer understanding enables to innovate and develop services to better serve consumers (Interviewee 3). Interviewee (1) adds that productization is important as marketing can be viewed from commercialization perspective. Enhanced understanding enables better commercialization of products and services.

The primary use for data in the B2B sector is enhanced consumer understanding to help advertiser-marketer customers conduct better marketing. Vast data sets enable the commercialization of novel services – selling consumer understanding for B2B companies to enrich their data with our enhanced consumer understanding. *“Data department conducted data mining and analysis to generate website user analysis for a B2B customer (Interviewee 3)”*

Increasingly data will be needed internally and for B2B customers. Thus, Interviewee (6) states that the data in B2B sector is in such early phase as data is mainly utilized in campaigns and segmentation. However, according to Interviewee (1) the corporation is still at the beginning of this exploitation as resources and capabilities are being developed all along. Interviewee (9) confirms, data is not utilized yet with its full potential.

*“We still have a lot to learn and embrace internally, therefore data exploitation conducted today is at an early stage compared to the opportunities and potential it really has” – (Interviewee 3)*

### **5.3 Resources and capabilities**

Two central themes *understanding* and *human resources* were describe as the primary factors required in applying data-marketing. Effective data-marketing requires an analyst, a growth hacker, project or product manager and a software developer who constantly furthers the change. The results confirm data-driven approach in marketing primarily necessitates understanding that utilizing data delivers added value for the company. Furthermore, someone has to be in charge of forwarding data-driven approach having the capabilities to understand data and obtain data literacy. (Interviewee 5) To fully understand business and technology that much to understand the opportunities of what can be done ie. *growth hacking*. (Interviewee 6).

Interviewee (1) highlights that investing in future employees and maintaining the competence level by training existing employees or recruiting new ones in acquiring required resrouces. Claiming data-driven approach in marketing primarily requires human resources with technological capabilities.

*“Technology systems form one entity, the ability to select right technologies which enable data collection and processing. On the other side, human resources are required, furthermore, people with the capabilities to use the systems, understand data-driven marketing and have the knowhow how to utilize them. It’s the combination.” – Interviewee 8*

#### **5.3.1 Data-driven marketing resources**

Companies need to establish data platforms that are capable of collecting, storing and analyzing large amounts of continuous data flow in real time (Agrawal et al. 2012; Davenport et al. 2012; Erevelles et al. 2016). The corporation has been able to establish a technological infrastructure which is capable of collecting, storing and analyzing vast amounts of data from various sources. Thus, according to results all companies purchase data platforms and components from external partners. Company A confirms, for bilding the data platforms they purchased ready-made components from external partners however, on the marketing side quite a little is purchased

externally. Additionally, marketing insight department may purchase qualitative research from external research companies. The interviewees list e.g. Woomio, Tableau, Adform and Iterable data platforms which are licensed from external partners. In conclusion, the tools need to be in order, ie. where and how that data is being processed (Interviewee 9).

The study confirms human capital resources to be one of the main resource requirements in applying data-driven approach in marketing. Data is solely an additional variable to support decision making, data does not eliminate the need for expertise (Interviewee 9). According to findings more analytical skills are required. Furthermore, majority acknowledge the need for more data architects and holistic experts in digital marketing. According to Interviewees (3) and (8), personnel which combine marketing expertise with technology and business expertise are very rare, thus needed. Interviewee (1) views that both old and new human resources are required as it enables learning from one another. Inhouse personnel has industry understanding as new employees may bring new business models. Furthermore, Interviewee (3) acknowledges that more human resources are needed when conducting larger B2B sector marketing projects “*we have the capabilities but not enough human resources*”.

*“We have data architects, data engineers, system developers, data scientists, marketing analysts, strategists, content creators etc. however, not all companies need to have the same arsenal to do effective marketing”* – Interviewee 4

The results suggest that the managers perceptions have shifted towards data-driven decision making which according to Sheng et al. (2017) results to changes in organizational culture, leadership, human resources and other management areas. Interviewee (5) confirms organizational leadership and management changes are being done to become *data-driven*. Furthermore, “*from a resource-based view, it is extremely important that a large organization of 700 people knows how to bind resources into marketing on a corporation level.*” Sorli and Stokic (2009) claim that an appropriate organizational structure aids big data management and analytics to efficiently turn data into knowledge. The appropriate organizational structure in marketing is still missing as the companies do not interact enough efficiently (Company A)

Regarding availability of human and financial resources, the evidence suggests subsidiaries to be financially dependent on Company A. Interviewee (9) explains “*others wonder how we have*

*the resources to do such projects on our own, have enough human and financial resources”*. Thus, projects are fundamentally conducted according to our own resources and capabilities.

*“We have a good situation on the business side, having data understanding and a coder, thus we don’t have data-architects, though we are able to use corporation’s resources and know-how”*. – Interviewee 9

Company A confirms, depending on the size of company and marketing department companies need to assess their resources on what can be done internally and what to outsource. Interviewee (4) adds, it may be more cost effective to find a partner to when going deeper into analytics. Company B describes the corporation to have all the resources required and currently all subsidiaries are cooperating with Company A in many marketing projects. However, Interviewee (6) comments that they are going with tight budgets in marketing and development.

### **5.3.2. Data-driven marketing capabilities**

The enriched visibility of ensembles may be offered with more affordable prices today. Thus, Interviewee (2) acknowledges that majority are lacking the analytical capabilities to interpret the results stressing existing analytics technologies are incapable for conducting required analyses. Therefore, human knowledge, analytical and technological capabilities are vital and most discussed themes in this study. Day (2011) suggests they “glue” assets (marketing technologies and capabilities) together enabling advantageous deployment. All companies establish the need for data, marketing and technological capabilities. Kozlenkova et al. (2014) claimed, data-driven marketing requires diverse market-based assets such as marketing, technology, R&D and innovation capabilities. Furthermore, the findings confirm that technology resources are considered as enablers hence, technology is worthless without appropriate expertise, being strongly dependent on analytical and technological capabilities.

Capabilities include cumulative learning and tactic knowledge Day (2011) as discussed theory encompasses developing capabilities internally or purchasing capabilities externally, *outsourcing*. However, unexpectedly all companies consider developing data-marketing capabilities internally more important. Thus, Interviewee (2) acknowledges the benefits of outsourcing e.g. *“there are projects done internally to a certain point as some phases are being*

*outsourced to ensure best possible outcome*". If companies lack development and innovation capabilities within, no progress will be done (Interviewee 5). Clear state of mind, strong motivation to learn and self-develop is compulsory (Interviewee 6) to acquire cumulative learning and tactic knowledge internally (Day 2011).

*"The core capabilities are preferred within. After all work can be purchased, thus understanding must endeavor inside."* – Interviewee 6

Data, technology and analytic capabilities are considered most essential in applying data-marketing. *"Data and analytical capabilities enable emphasizing data in decision-making, furthermore, trust data, identify relevant data on the basis of which you can make those decisions for business understanding"* (Interviewee 9). Moreover, the ability to understand and analyze data on top of marketing technologies. Without technological capabilities, credible data generation cannot be achieved. (Interviewee 3).

Data is considered as an additional factor involved in the decision-making process raising up the necessity of data literacy. Understanding the quality of the data and distinguish the decisions' risk factors in relation to quality. *"Decisions may be based on imperfect data, companies are enforced to assess the potential risks it may bring to decision-making"* (Interviewee 5). Company C confirms, the relevance of data literacy; which data can be trusted and used in decision-making, likewise which data requires filtering or is to be completely forgotten. Data can be imperfect hence, measuring data quality is important as to evaluate what is value-generating data. The ability to understand what is being measured and which decisions are based on data. The importance of business expertise does not diminish along data.

Both theory and empirical findings stress the significance on developing and binding analytical, technological and marketing capabilities thus, dismiss the cooperation required by various departments. In theory cross-border cooperation was covered considerably superficially thus, Interviewee (5) further emphasizes cooperation across following functions; *sale, marketing and supply/production*. Binding customer, product, marketing and technology understanding tightly together enables collaboration across different functions. Interviewee (6) explains *"we don't want to restrict marketing functions solely to marketing department or development tasks to development department, consequently they must solidly operate together"*. This requires comprehensive skillsets in marketing and customer interface.

The dynamic capabilities theory emphasized top managements role in properly adapting, integrating, and reshaping company skills and resources along with (Teece 2007; Trainor 2011) functional competences. The findings imply that all companies address the significance of managerial capabilities as Bruggen et al. (2001) and Kumar et al. (2013) claim managerial judgement to be the primary asset for marketers. Company A confirms that the development of data-marketing model requires top management support and primarily understanding of data opportunities and a strong vision of how to accomplish set objectives. Interviewee (3) elaborates, “*data-driven marketing is not conducted in the bases it is trendy, nevertheless, to accomplish company goals and strategies*”. Management must obtain sufficient understanding of what is desired and the expertise required to achieve these goals. To obtain expertise in management whom obtain the latest knowledge on data marketing, both technologically and commercially.

Theory stresses the importance of top management to view data-driven marketing as a strategic priority enabling investments into right managerial talent support systems as well as to understand the benefits of data-driven strategies. However, theory fails to discuss the project management capabilities in applying data-driven approach. Thus, according to results majority of interviewees project management skills. “*The ability to further large entities as well as to master both large and small details*”(Interviewee 3). Additionally, top management faces the challenge of balancing competences. Management is obligated to measure the level of competences and asses the need for training employees and recruiting novel expertise. Therefore, management training has received immense contributions to ensure appropriate managerial capabilities in consistent changes in the business environment (Interviewee 1).

According to Marshall et al. (2015) successful managers follow three basic strategies centered by data; skills, tools and culture. The results confirm the theory assumption as Figure 13. culminates the three primary factors required in data-driven marketing; *maturity, technical capabilities* and *culture*. Culture, capability, and maturity to utilize data are essential as Interviewee (5) further explains:

*“Maturity to understand representational, diagnostic, predictive, and descriptive analytics, culture, data literacy, base decision on data and act beyond the boundaries of departments, technology acts as an enabler.”*

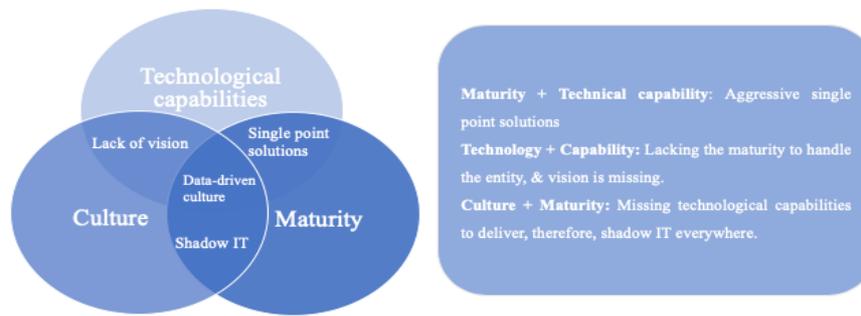


Figure 13. Developing data-driven culture

The development and generation of data-driven culture requires all areas to function together which is intricate thus doable. The corporation obtains a centralized data warehouse Miilu, a self-service focused data visualization tool Tableau and modern cloud technologies which form the technological capabilities. Maturity increases through analytical training to further understanding on the benefits of data utilization. Training results in creation of data culture in the field of maturity. The ensemble is decisive being impossible to utilize organizational resources without financial resources (Interviewee 7). Everything culminates in management competencies as successful managers have the ability to raise employees to a sufficient level of competence. Moreover, managers enable the company's employees to have the best tools, abilities and know-how in relation to their occupation.

### 5.3.3. Developing data-driven marketing capabilities

Theory introduced the process of developing capabilities by Day (2011) and Teece (2018). However, a distinct gap exists how companies develop data-driven capabilities (Davenport et al. 2001). Hence, this section aims to bring theory closer to practice as the interviewees were asked to describe how capabilities are developed in the corporation. First step is to stop the fearing data moreover, data needs to be utilized courageously. By increasing the understanding *“the purpose of data is to make work easier, result in enhanced decision-making and free resources for other use”* (Interviewee 9).

Carter’s maturity model (figure 14) has been utilized in describing data-driven capabilities; representational, diagnostic, predictive, and descriptive. *“My primary goal during this year is to raise the company to a predictive level”* (Interviewee 5). Moreover, Interviewee (3) believes the corporation obtains solid data development capabilities. During the interviews six central

themes were identified; training, recruiting, self-development, concrete examples, role of top managers and entire organization.

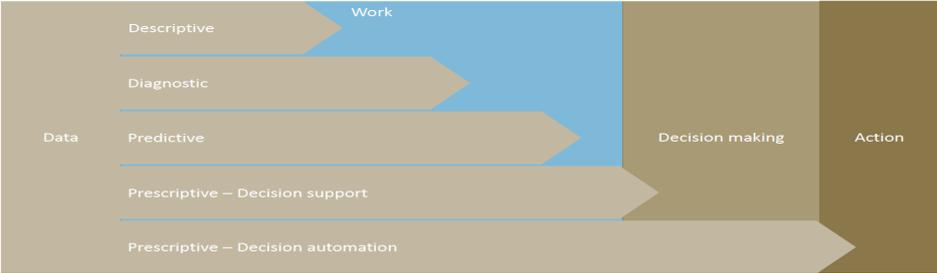


Figure 14. Data Maturity Model (from Company A training material)

All companies agree on the importance of training employees as well as recruiting novel expertise in developing capabilities to reconfigure the required skillsets to apply data-marketing. Data-marketing capabilities can be acquired through employee training, recruiting or purchasing externally (Interviewee 3). Interviewees (4) and (5) have held numerous trainings: *“What is Data, Data Information, Data Visualization ABC, Knowledge Management, KPI thinking and Tableau trainings etc. stressing the strategy reviewing from a data perspective”*. Surprisingly, majority of the participants consider top management training even more vital in comparison to employee level training. Top management must be data-oriented therefore, training ensures enhanced understanding behind data (Interviewee 5). Management must view data as a critical success factor which may result in competitive advantage.

Theory suggests companies develop capabilities by combining individual skills and knowledge with available resources. These arguments were confirmed thus, majority claims each employee is responsible of self-development and self-learning. *“One major illusion is employer to be responsible of continuous development, thus it is the responsibility of each self”* (Interviewee 1). The corporation has innovated models ensuring the continuous development of employees. Everyone spends weekly two hours on developing desired capabilities and skillsets. This model enables a wider range of capabilities. *“Google has various learning platforms where certifications can be done – that is one way to develop data capabilities”* (Interviewee 10)

Organizational data-driven capabilities are developed through increasing competence levels and understanding on daily data utilization opportunities (Interviewee 3). The goal is self-service analytics where everyone obtains the ability to conduct analytics and reporting for own

needs (Interviewee 5). Furthermore, Interviewee (9) stresses that the optimal construction of data capabilities can't be in the hands of a small group. Hence, everyone is required to participate when exploiting data comprehensively. Thus, it necessitates tools, trainings and support to be available rapidly within the corporation (Interviewee 6).

The concrete benefits data should be visualized on a practical level by demonstrating utilization opportunities in daily work which Interviewee (4) conceptualizes as *data democratization*. Data is often considered complex and challenging to understand. Therefore, visualized data further contributes into improvements and developments in usage. Interviewee (4) emphasizes binding marketing and business objectives permitting the understanding of impacts about marketing activities on desired business goals. However, to maintain a business development perspective in which marketing measures guide business development.

The development of data-driven capabilities has been done through *push* and *pull* -motions. First, data-driven capabilities have been pushed into organization through training and increasing data understanding. Over time, push has rotated into pull, people are genuinely interested developing data-driven skillsets. Development of data-driven capabilities is conducted on grassroots level into people's everyday work life e.g. visualizing information boards with NPS readings, sales, subscriber numbers, etc. *"In the beginning we brought data and understanding to the fore and challenging people with it* (Interviewee 6).

**5.3.4. Developing data-driven culture**

Interviews confirm the primary challenge in applying data-marketing is the adaptation of organizational data culture and shifting to data-driven decision making (Kumar et al. 2013; Wedel & Kannan 2016). Despite this, the corporation aims in data-orientation. Objectives have been set to develop organizational culture as capabilities are developed to the extent where anyone has the ability to utilize data. Interviewee (5) elaborates the practical measures taken in developing organizational data culture (Figure 15).



Figure 15. Enablers for data-marketing

Firstly, increasing understanding requires a common language and vocabulary. *“In creation of data-culture it is vital to create a common vocabulary. Especially in data literacy, this becomes extremely important.”* Subsequently, data ownership and governance models are fundamental as *“who decides on how we decide”*. (Interviewee 5)

*“Inspiring employee experience has positive impacts on customer experience. We invest in developing a meaningful corporate culture and employer image and making the operating culture more agile and self-directed.”* – Interviewee 1

#### **5.4. Data-driven business model innovation**

No debate, the digital revolution is threatening existing business models (Leeflang et al. 2014). It Forces companies to alter business, marketing and operating models, develop new data-marketing skillsets and foremost acquire up-to-date know-how (Company A). However, business model innovation in the context of data-driven marketing is perceived with a positive and opportunist tone. *“Changing internal business models provide novel exceptional opportunities in improving consumer understanding resulting in novel marketing models”* (Interviewee 1). Increased customer understanding enables companies to conduct better marketing. The digital revolution has changed in many ways all companies marketing, capabilities and operating models. Company A is still in a transition where internal operating models and processes need to be altered in order to constantly develop data marketing models. Hence, *“the primary mission is to make us a data-driven organization”* (Interviewee 5).

*“Larger companies have succeeded in data utilization. Often starting from marketing, as on the marketing side, marketing automations provides data directly for B2B customers use. Despite this, we still have a long way to go in data utilization in small and medium sized sectors”*. – Interviewee 4

Currently the corporation is working on three major data-marketing business model innovations. Firstly, digitalizing Company A’s affiliate program, secondly commercializing IT architecture, in other words shifting from a media provider to a marketing partner and lastly affecting the both parent company and all three subsidiaries data and analytics business.

The digitalization of the affiliate program permits the collection of vast amounts of consumer data. *“The affiliate program is one way to get more information from customers; what they are doing, what are their interests etc., which in turn increases our customer understanding and again aids us with all other activities”* (Interviewee 1). Moreover, digitalizing the affiliate program is a huge opportunity to increase sales and develop new marketing models.

The affiliate program enables selling consumer data and visibility to B2B customers while providing services and offers on the consumer side, combining B2B and B2C affiliate programs. The more companies are involved, the more added value can be delivered to consumers. Furthermore, the digitalization aids business model innovation both in B2B and B2C sectors. Data and the increased consumer understanding assist the second project in commercializing the data collected, providing comprehensive data and digital marketing services and commercializing the ICT architecture been built.

The target state is to shift from media provider to marketing partner. *“Our service portfolio has expanded from selling own medias to providing marketing services. Permitting the offering of a much larger field in marketing.”* (Interviewee 2). Thus, expanding the service portfolio has resulted in challenges on how to commercialize the collected data and data infrastructure. Sorescu (2017) suggested, business model innovation can be designed around processes of collecting, organizing, summarizing external data with the goal of simplifying market research process, increasing profitability, identifying customer needs, improving product assortment and recommendations and promotional efforts.

Furthermore, Interviewee (2) stresses the importance of delivering added value for customers by providing wide range marketing service from data collection and analysis to marketing strategies. Majority of the B2B customers lack assets in building own data infrastructures therefore, leaving no other choice than to outsource and purchase externally. Even today smaller companies are missing the resources to start conducting and applying data-driven marketing. Company D implies to their customer base *“our clientele has a lot of small businesses that don’t want to invest too much into data-marketing”* (Interviewee 10).

Lastly, innovating and developing novel data-marketing and analytics models in the B2C sector. Interviewees agree that data-driven models improve consumer understanding. They

enable the development of customer understanding services e.g. research services, analyses, customer analyses both own customers as well as B2B customers customer analysis based on their CRM which in turn strongly relates in the ensemble of marketing services. However, “*we have experienced challenges of how and to what direction to develop our business model. Thus, a more comprehensive vision has now evolved*” (Interviewee 7).

The findings reveal that few artificial intelligence projects have already been conducted or are under process. Classifying and recommendation systems are two major projects being already partially operational thus, will be further expanded (Interviewee 4). The recommendation systems are to be exploited in content recommendation, customers receive targeted content according to their preferences and interests. Furthermore, Company A explains deeper understanding was sought by clustering content to reveal connections between contents. Subsequently Company A utilizes the data for recommending relevant media contents as Company B exploits it in product recommendation systems.

The results support Zott and Amit (2017) that the need to develop new business models which operate in the digital environment is the primary challenge companies face today. Thus, the digital environment is considered as necessity, inherent and as an opportunity. For company A, business model innovation has been compulsory regarding their operating industry which has been in turmoil for years also the company has a long history which dates back 120 years. In comparison, all subsidiary companies are much younger and operate in the marketing industry.

*“It has been inherent, in the media industry sales decrease 10-15 % per annum, something must be innovated to replace it”.* – Interviewee 2

The interviewees were requested to explain why they have set out to innovate and apply data-marketing models. As expected, the majority’s response was “*the question today is, why not?*”. The results indicate market changes to be the *push effect* and better decision-making and more effective and efficient marketing to be the *pull effect* where technology is viewed as a combination triggering business model innovation. Company A explains, it was clear that traditional business models are inadequate. Business models are to be developed in the direction the whole world and development is going in order to remain competitive and foremost, in terms of business survival. (Interviewee 3) Company A obtains solid clientele and possess large

amount of data and information on its customers which majority of the marketing departments are interested in. This has resulted in construction of extensive data-marketing services enabling to utilize the core and to compensate media decline with novel marketing services.

The primary reasoning behind developing and applying data-driven marketing is enhanced decision-making, more effective and efficient marketing measures. Interviewee (8) describes data-marketing to be the only smart way of conducting marketing in today's digital environment. Furthermore, to base decisions on data and analytics. The application of data-marketing models enables increased functionality of marketing and overall business services.

Tarabucchi et al. (2019) suggest we have entered into the "golden age" of digital innovation where rapid technology improvements have enabled companies to fundamentally change how business is done (Zhao et al. 2013). *"We aim to increase the corporation's data and artificial intelligence to world-class levels. Therefore, from a business innovation perspective, that is what we are doing here"* (Interviewee 5). Currently, the creation of novel business models consists of creating and resourcing a data-marketing models. The results stress employees to obtain technical capabilities and foremost understand and value the technology's potential. In precise, the creation of innovation and understanding based on data (Interviewee 5).

Data-driven business model innovation requires changes and modifications in organizational culture, operating models and foremost in technology. Organizational culture needs to be altered in order to utilize the existing capabilities. All companies confirm business models require to be rethought and modified and the suitability of existing models questioned aiming at more efficient ways to leverage data-orientation, analytics, and automation (Interviewee 6). As data-driven business models are emerging companies are forced to embrace big data, adopt advanced information systems to improve effectiveness and flexibility of their decision making (Sheng et al. 2017). All companies emphasize technological investments in constructing a technological infrastructure enabling data-marketing. However, building the data infrastructure from clean slate was considered beneficial. Today the data utilization capacity can be built quickly which was unexpected. However, the most time consuming in business model innovation was considered *cleaning* the data into a usable form. *"We have spent a lot of time on cleaning and enriching the collected data in order to be able to utilize it"* (Interviewee 5).

### **5.4.3. Innovation process**

Theory suggested leading companies today are investing in innovation. Furthermore, leveraging the ever-increasing opportunities to collect data, combine external and internal data, exploit big data and analytics (Marshall et al. 2015). The results imply that data related innovation is considered important as all companies are investing budgets on data-driven innovations. Company B views innovation process to be at its best when management encourages employees to innovate. Company B describes the innovation process to be agile “*when new ideas emerge, the aim is to quickly put them into practice and experiment, make observations basing the decisions on what works and what doesn't*” (Interviewee 7). In comparison, Frankenberger et al. (2013) claims innovation process (Figure 5) to consist of; initiation, ideation, integration and implementation.

Innovation is triggered through various ways in different companies. In Company C innovation is done on *need basis*, through *internal work cycling*, *workshops* and *kickoffs* explaining internal work cycling is a good way to bring out development ideas. Additionally, theory points out the necessity for creative thinking in order to leverage form big data innovations (Erevelles et al. 2016). Both company A and C confirm data as the primary theme during workshops.

*“During workshops ideas and hopes are gathered at low-threshold with a scenario if anything were possible, subsequently begin reasoning what is feasible in short, medium and long run.”* – Interviewee 9

Moreover, Company A elaborates that data insight team aims to aggressively innovate how accumulated data can be create new business. However, innovation workshops are also exploited with customers. Interviewee (4) further explains, typically the workshops begin with going through business goals and challenges and as trust and understanding of data accumulates, it enables more deeper utilization of data in terms of business or revenue models. Lastly, Interviewee (5) claims humans to rather be the limiting factor in innovation than technology. However, if technology is considered as the restriction in innovation the limiting factor must be found and thereby increase the capabilities to overcome this limitation.

#### **5.4.4 Business model innovation process**

The results suggest business model innovation occurs in various ways adding new activities, linking activities in new ways or changing one more party's performing these activities (Amit & Zott 2012). Company A confirms, business model innovation has been done on top of old models, being able to utilize existing technologies and platforms. Theory offers various business model innovation process steps such as 4I (*initiation, ideation, integration and implementation*) by Frankenberg et al. (2013) or Osterwalder and Pigneur (2010) *mobilize, understand, design, implement and manage*. The previous chapters discussed in more thorough the steps mobilizing (design of project) and understanding (research and analysis of required elements) as this chapter aims to explain the design and testing phase. Subsequently, the following chapter reviews the implementation and management phases of business models. Interviewee (2) acknowledges the need to proceed step by step as there is no easy path in data-driven business model innovation. However, not proceeding with the path is no option.

Interviewees were requested to further elaborate the testing phase of business model innovation. Furthermore, to describe any conditions, limitations or restrictions of existing models in designing new ones. The results varied among companies. Smaller companies report more limitations and restrictions in comparison to the parent company. "*Resources are always limited in time*" (Interviewee 9), further elaborating the data capabilities always being an investment. However, "*existing models are not restricting business model innovation, thus are to be altered accordingly in case of challenges*" (Interviewee 7).

Generally, the results imply that all companies have conditions which require consideration, but they are not considered as restrictions. Nonetheless, according to Interviewee (3) history itself sets certain limitations in a large and old-established organization. Considering it as a primary obstacle to development as people are used do things in a certain way. "*E.g. in media industry, print media is conducted variously compared to what novel data-driven thinking requires and necessitates, definitely bringing limitations*". Interviewee (4) explains new systems and operating models have been adopted as existing ones are no longer valid.

*"Marketing used to apply solely print advertising, subsequently bringing new means of data utilization does not necessarily eliminate old processes, thus opens*

*new possibilities; novel channels, content, or conducting A/B testing even in print advertising*". – Interviewee 3

*"The base data, which has been collected from the beginning has been imperfect, in the time being marketing authorizations were missing. Resulting in various challenges and restrictions to utilize data for marketing and business development, furthermore, building data-marketing models."* – Interviewee 6

Consequently, the participants provided insight on made choices during the testing phase that may limit or restrict future business model plans. The results indicate that limiting or restricting choices have not been made. However, development resources are limited, and development takes time. As company C agrees, resources set the ground rules as the corporation's data team is not endless. The parent company is required to consider what is being developed and with what volume of resources they will progress in the parent company itself, the corporation and subsidiaries.

According to Interviewee (2), the deployment of the analytics tools has been the most critical phase. Company A thought they are able to develop the analytics tool internally, but it never rose enough high in the priority list. *"It was hopefully thought, thus being realistic we chose to invest. An external module was introduced during the spring, which has been a good decision."* Company B considers the lack of coherent measurement systems has negative impacts on future decisions as individual metrics can be misleading.

The results imply that the first steps toward data-driven business is the configuration of a data-platform entity. Gathering all relevant data into single platform enabling more extensive data utilization and understanding. All companies confirm system and infrastructure cooperation between the parent company and subsidiaries. Marketing tools such as Iterable are shared within the corporation. However, the utilization is done according to each business unit needs.

In the context of data-driven marketing interest arose on how existing technology infrastructures influence business model innovation. Company A believes technology infrastructure provides the basis for data collection, management and utilization. However, it has not yet been utilized on an organization-wide basis, lacking day-to-day and easy-to-use

tools which bring data into peoples' daily work. Previously mentioned *Miilu*, operates as the corporation's technological infrastructure collecting data from own systems as well as externally purchased data sets. It is a huge entity which has been built and is aiming to be widely available throughout the organization. *"I do not yet have such data processing tools or skills and abilities which enable the exploitation of data to its full potential (Interviewee 3)"*.

Company A obtains good technological infrastructure and systems thus, their integration and utilization are time-consuming processes, primarily consisting of process modeling. Furthermore, the results suggest that the technological infrastructure acts as an enabler for business models. Interviewee (5) confirms, *"I don't consider them limitations more as opportunities"*. Company A acknowledges the differences among smaller and larger companies explaining smaller companies typically lack a coherent data infrastructure, thus obtain individual data systems. *"It has had big impacts coming part of the corporation"* (Interviewee 9) and further elaborates, the corporation has enabled high volume investments in larger data projects as well as the utilization of corporation's capabilities, and technologies.

Additionally, the results imply that during the design phase companies have been forced to acquire new knowledge and skills in order to proceed with novel business models. All interviewees agree novel expertise in different fields with diverse capabilities have been acquired through recruiting. However, Interviewee (4) stresses the importance of accumulating skill sets internally *"competences are built for oneself"*. Company B and C confirm this nonetheless, it is being done on a too small scale. Additionally, partners bring added value which has been exploited in the business model innovation process.

#### ***5.4.5. Applying data-driven marketing***

The five stages of data-marketing implementation discussed by Johnson et al (2019) is applicable within the corporation. Furthermore, it describes how companies capture, integrate, analyze data in marketing decisions using the emerging technologies and techniques. However, Company A considers applying data-driven approach and data-driven models as a complex and time-consuming process. *"We are just beginning this journey, there is still work to be done however, much progress has also been made"*. (Interviewee 6).

The process begins with *sprouting*, the implementation of analytical technologies into daily operation. The corporation constantly strives to bring data in a visual form into employees' everyday lives. "E.g. *Introducing dashboards and screens for in various departments within the organization, enabling up-to-date real-time tracking that is relevant to ones' particular function*" (Interviewee 3). When everyone is able to follow relevant data guiding own objectives, it integrates more effectively. Theory suggests the novel efforts towards data marketing goes beyond the organizational core increasing the support for asset commitments to data driven marketing. Additionally, Interviewees (2) and (5) emphasize the selection of appropriate metrics. There are roughly about 60 metrics forming the basis for data-driven marketing. Therefore, it is clear everything can't be followed thus, being crucial to find the best suitable ones. " *Choosing no metrics is a pitfall, choosing the wrong metrics results in unfavorable actions*" (Interviewee 2). Therefore, the process begins by defining clear objectives and metrics.

During the *recognition* stage, analytics begin to show results and departments begin understanding the significance of big data analytics (Järvinen & Karjaluoto 2015; Wedel & Kannan 2016). Company A explains by identifying the best suitable indicators in each context it has enable to understand how different kind of data can aid decision making and result in enhanced business and marketing actions. Additionally, theory suggests companies include descriptive analytic methods in their marketing functions (social media tracking, cluster segmentation and customer lifetime value estimation). The previous chapter confirms the corporation has included artificial intelligence (classifying and recommendation) projects, clustering segmentation, customer tracking, consumer journey mapping, and deeper consumer analysis as well as customer lifetime value estimations.

Interviewee (4) describes that they produce various analytics for their B2B customers. However, the results suggest customer base analysis and modeling are the current trends in marketing analytics explaining already data visualization with Tableau enables to deliver added value for B2B customers. For example, customer base analysis provides valuable information on company size, industry, purchasing power, demographic or socio-demographic data as regression and correlation analysis are utilized in customer segmentation and grouping.

In the *commitment* stage companies invest in data warehouses and hire analytic consultants and experts (Leeflang et al. 2014; Sheng et al. 2017). The findings reveal Company A originally exploited Google Analytics as all the subsidiaries still do today. However, the vast amount of klick stream and web page data exceeded Google's limits becoming extremely expensive for Company A to continue with that alternative. Therefore, the corporation invested in building an own data warehouse *Miilu*. Concurrently as all data was centralized into *Miilu*, the corporation switched to exploit Tableau in analytics. All subsidiaries confirm exploiting additional data collection services specified for each companies' needs. The implementation process by Johnson et al. (2019) claims companies begin to trial new data-driven strategies in this stage to enhance data-driven business models. Along with the new data-driven strategy which was set in motion in the corporation in 2017 the investment needs in data technologies, analytics and utilization was recognized. Therefore, "*I was hired in the beginning of 2018, and recruited a data team with required competencies; a data architect, data engineer, development manager who understands artificial intelligence and a process expert*" (Interviewee 6).

Successful implementation requires a *culture shift*. Data must be integrated as part of organizational culture through continuous learning and investments in digital analytics (Erevelles et al. 2016). The culture shift is currently an ongoing process as the data development team conducts trainings for employees to perform daily work tasks based on data. In the future the aim is to not be dependent on the data unit but for every department to obtain knowledge and skills to find relevant information and utilizing data in daily work. (Interviewee 3) Employees have also received analytics (Tableau) trainings. Furthermore, according to Interviewee (9) everyone has adequate rights, user levels and training has been provided for everyone as much as they feel the need for. Everyone has the opportunity to acquire a sufficient level of knowledge about data tools and data capabilities for their own work.

Finally, companies reach the mature stage of *data-driven marketing*. Theory suggests that advanced data-marketing companies apply big data analytics across all departments, not just marketing (Erevelles et al. 2016; Sheng et al. 2017). According to results, within the corporation various functions and departments work closely together. Furthermore, data and data analytics are applied across all departments from accounting and supply to marketing. Company A elaborates their data-strategy, "*being able to find relevant data by visualizing data and collaboration among different departments to get most out of the data.*" (Interviewee 5)

*“Much depends on changing internal processes and operating models. However, the importance of work decision is emphasized in to obtain the best possible operating model in which different departments (delivery, marketing and sales) are involved in the process. This has not always been the case”. – Interviewee 1*

The results indicate data that is collected from various sources and departments; finance, accounting, marketing and supply through e.g. click streams, online behavior, consumer behavior, purchase and order data. Big data analytics are applied widely across organization.

*” E.g. currently we have “exit analysis” going on in order to be able to predict when a consumer is about to unsubscribe an order. Good preliminary results have been obtained and efforts are now being made to further develop the forecasting model”. – Interviewee 6*

Company A provides a concrete example of the marketing automation implementation process the introduction of new technology and practices supporting Johnson et al. (2019). The implementation of data-marketing technologies is long and complicated process. Interviewee (3) confirms, the entire implementation process took almost one year. However, still practicing, changing and improving the operating models stressing out the importance of the process entity. Solely introducing new technologies is not enough as it requires also changes in operating models and processes. The implementation process began with setting up a team (Interviewee 3 operated as project manager) for workshopping the current situation and generating ideas on how marketing automation can be exploited. Moreover, they discussed the added value it can produce in euros as well as from a customer experience perspective. With the service designer the implementation was discussed from a consumer perspective. Followed by consideration of internal processes and the required changes to successfully implement marketing automation software. They discovered a system able to fulfill the needs of both consumers and corporation.

*“After defining current situation and objectives, a system and a system service provider was found providing more information and understanding of the implementation process. Subsequently, began the system introduction and altering of operating models. The Implementation requires commitment, especially in process change”. – Interviewee 3*

## **5.5 Opportunities and challenges of data-driven marketing**

Marketing as a phenomenon has changed a lot over the last years creating various opportunities and challenges due to the magnitude of diverse, rich and rapid pace of data generated (Grönroos 2006; Erevelles et al. 2016). This study found certain factors hindering and encouraging the data-driven journey. Companies struggle balancing with the allocation of limited resources across the exploitation of existing opportunities and the exploration of new opportunities. Johnson et al. (2017) view big data innovation to be concurrently the ultimate advantage and challenge.

The most distinct opportunities data-driven marketing offers are increased consumer understanding and enhanced decision making which in turn results in more effective and efficient marketing. Customer data is a highly important asset for companies (Erevelles et al. 2006) as it represents the relationship with customers and potential customers. The collected customer data provides an opportunity to examine and understand customer behavior and responses to marketing. Data-marketing offers increased consumer understanding obtaining a customer centric approach (Interviewee 1 & 4). For customers it offers better targeted and more personalized marketing. Furthermore, to optimize marketing activities, increasing the effectiveness and efficiency of marketing means (Järvinen & Karjaluoto 2015). Theory fails to mention the transparency-perspective; thus, Companies A and C consider data to provide transparency throughout the business for consumers where marketing plays a big part.

Today data is in the center of the marketing decision-making process offering companies fact-based decision making away from intuition and experienced-based decision processes (Kumar et al. 2013; McAfee & Brynjolfsson 2012; Orlandi, 2016). All companies agree that data enables fact-based decision-making, ensuring that right actions are taken from both customer and business perspective. The allocation of resources and capabilities based on data is one of the primary benefits (Interviewee 8: Kumar et al. 2013). The rise of advanced data-analytics aid companies to maximize performance and the effectiveness of marketing efforts as they provide insight on marketing performance and the effectiveness of their marketing activities to optimize ROI (Wedel and Kannan 2016). The results suggest all companies consider data as the primary building block for revenue growth.

Majority of the challenges are resource and capability related and more specifically the challenge of developing novel company assets. However, the lack of resources was mainly with the subsidiaries thus, Company A also reported lack of human resources. As expected, all companies report they lack data-driven capabilities. Also, Davenport et al. (2001) point out the challenge of utilizing the analytic technologies to its full extent as companies heavily invest in digital technologies but lack analytical capabilities. Company B explains, “*the adequacy of internal resources is major challenge*” (Interviewee 7).

*“Data technologies are not utilized to full extent due to lack of resources, employee with marketing and technology expertise is required”* (Interviewee 8).

Another challenge companies’ face in applying data-marketing is the culture shift toward fact-based decision making and developing organizational data-culture. With data one of the most challenging factors is fearing data and failure as people are insecure with data. In these situations, creating organizational data culture is really difficult. Besides developing organizational culture, the results indicate changing the current operating models is considered more challenging in Company A in comparison to subsidiaries, due to company size.

Data and information overload are beyond the capacity for companies to fully understand and act upon Davenport et al. (2001). The amount of data available creates the challenge to distinguish relevant data from the vacuum (Interviewee 9). Gandomi and Haider (2015) agree that the issue with big data is that it is worthless in a vacuum. Additionally, the massive amounts of data need to be enhanced and managed (Day 2011) and the quality of data needs to be enhanced to gain meaningful insight (Chiehyeon et al. 2018). Interviewees (6) and (9) consider it a challenging and time-consuming process to enhance data to such form it can be utilized. Furthermore, the importance of selecting analytics and metrics is seen as a major challenge in applying data-driven marketing in all companies due to the amount of available metrics. Hanssens and Pawels (2016) suggest that marketing analytics consist of both hard and soft indicators. Interviewee (4) highlights the challenge of measuring the effectiveness of marketing. It is considered challenging to capture the significance of creative means on the basis of the data unless qualitative research is included.

## 6. DISCUSSION AND CONCLUSIONS

This final chapter summarizes and discusses the findings by answering the research questions and highlights the primary theoretical and empirical results. Subsequently, the theoretical contributions and managerial implications discussed. Lastly, the limitations of this study are presented, and future research directions are provided.

### 6.1. Summary of the Findings

The following section provides a summary of the results. The main research question, how business model innovation is done in the context of data-driven marketing, is answered with the four sub-questions findings.

#### **What is data-driven marketing?**

In the literature it was found that *marketing* lacks a generally accepted definition and marketing research defines it as an extensive concept. Some scholars view data-driven marketing as utilizing data in marketing by informing and optimizing the ways how marketing activities are executed. Thus, data-driven marketing can also be defined from technology perspective. Strong et al. (1997) further define data-marketing as information technology enabled marketing, managing big data. On the contrary, some authors (Johnson et al. 2019) define data-driven marketing exploiting big data analytics perspective. Furthermore, marketing managers consider data-marketing and BDA as decision-making tools moreover, as capabilities providing insight on (Johnson et al. 2019) marketing performance and effectiveness to optimize and allocate resources (Wedel & Kannan 2016). Due to the extensive definition, the purpose was to explore the practitioner's perceptions on data-driven marketing.

The internal and external changes discussed both in the theoretical and empirical section are forcing executives to rely even more on data and marketing analytics to increase the efficiency and effectiveness of marketing and other departments moreover, the overall business (Davenport et al. 2001; Van Bruggen et al. 2001). The progress toward data-driven marketing and more extensive use of analytics are propelled by the pressure coming from top management which increases with successful implementation of analytics in an organization.

This research found that from practitioner's perspective fundamentally all marketing activities should be based on data supporting the theoretical indications by (Kumar et al. 2013; McAfee

& Brynjolfsson 2012; Orlandi, 2016). The participants consider it increasing the credibility and reliability of marketing actions providing insight on marketing performance and resources allocation. They mention it enables enhanced decision making, more relevant and optimized marketing activities resulting in increased efficiency. The results also indicate the importance of understanding the relation between data and the organizations business. Hence, the corporation utilizes the REAN-model (Figure 10.) defining data-driven marketing.

To contribute the knowledge on data-driven marketing the participants reasoned the corporations' motives in innovating and applying data-driven marketing models; *increased consumer knowledge, marketing measurements, better decision making, efficient marketing, marketing automation, better productization and commercialization*. All participants support (Kumar et al. 2013) arguments on data-driven marketing having a customer centric approach. The understanding provided by data guides decision-making thus, knowledge and capabilities are required. On the other hand, data-driven marketing was considered as enhanced knowledge management. In conclusion, no question why marketing is considered as the most critical business element in this millennium (Kumar 2015).

This study bases its data-marketing process on (Chiehyeon et al. 2018; Gandomi & Haider 2015; Järvinen & Karjaluo 2015; van Bruggen et al. 2001) research. The process describes the insight generation from big data consisting of data collection, management, analytics and utilization. Companies collect ever-increasing volumes of data (Amado et al.2018) to forecast market trends and support decision making (Leventhal 2010). From the practitioners' perspective the evolvement of technologies, data collection and storing has become easier and affordable as *Miilu* demonstrates, confirming Kumar et al. (2013) arguments. Data is collected from all possible sources thus the primary data collection channels are own digital channels.

Data management prepares the stored data for analysis. Gandomi and Haider (2015) data management process consist of data acquisition, extraction and integration and representation of data. Whereas Wedel and Kannan (2016) provide alternative steps aggregation and compression, sampling and selection, and lastly computation. This study contributes a unified process accessing valuable and quality data from the vast pool of big data. Various scholars acknowledge the need for companies to manage data, create efficient processes to turn large volumes of rapidly generated rich and diverse data into actionable knowledge. However, from

the practitioners' perspective this is the most time-consuming step cleaning and enriching the collected data into an exploitable form.

Marketing analytics enhance companies' ability to identify and assess further marketing actions (German et al. 2013). As this study defines marketing analytics as techniques used to analyze and generate insight from the big data collected and managed. Marketing analytics guide companies to maximize performance and effectiveness of business efforts. Miilu, the technological infrastructure, allows to monitor each step of the marketing process, supporting fact-based decision making. Companies have access to vast amount of consumer data (Kumar et al. 2013), thus, does big data mean big knowledge? (Pauleen and Wang 2017) Without knowledge, analytics do not exist. Therefore, literature takes business intelligence (BI) view, viewing data as the underlying resource. However, data analytics permit companies to generate data-driven strategies based on the collected consumers data (Johnson et al. 2019).

Data utilization is dependent on occupancy, as proven in the empirical section. Data can be utilized in research, technology development, marketing and overall business decision-making. Furthermore, the findings show, data utilization to vary among B2C and B2B sectors. Within the corporation it was confirmed, data is utilized in all business areas; training, finance, accounting, internal analytics, marketing just to name a few. The primary data use in both B2B and B2C sectors are enhanced consumer understanding, thus in B2C for own use, and in B2B for advertiser-marketer customers.

### **What are the resources and capabilities required and how are they developed?**

The applications of RBT in marketing research have increased over 500%, indicating the importance and relevance of the theory (Kozlenkova et al. 2014). As it explains the internal sources of sustained competitive advantage (Erevelles et al. 2016; Rahman et al. 2018; Seddon 2014). Resources need to be developed into capabilities to effectively respond to the evolving market conditions. However, not all assets are strategically relevant, companies need to identify and evaluate the essential ones (Barney 1991) as financial assets are often limited and the corporation is going with tight budgets for development and marketing. Additionally, the results indicate the subsidiaries to be financially dependent on corporation resources.

Theory suggests the primary technological assets in developing data-driven marketing are technological infrastructure, data platforms, analytical tools and big data. Companies need to establish data platforms that are capable of collecting, storing and analyzing large amounts of continuous data flow in real time (Agrawal et al. 2012; Davenport et al. 2012; Erevelles et al. 2016). The corporation established a technological infrastructure, which collects, stores and manages vast amounts of data. However, some data platforms and components are purchased externally (e.g. Woomio, Tableau, Adform and Iterable). Human capital resources are regarded as the primary resources in applying data-driven approach. From practitioner's perspective, effective data-marketing requires analysts, a growth hackers, project or product managers and software developers. The technical assets play a strategic role when combined with organizational resources to generate IT-enabled resources.

This study identified the essential diverse market-based capabilities required. Scholars such as Akter et al. (2018) and Kozlenkova et al. (2014) value marketing, technology, R&D, innovation and analytical capabilities as most essential. From practitioner's perspective human knowledge, analytical and technological capabilities are considered most vital. However, majority are lacking analytical capabilities to interpret results. Additionally, creative intensity lies in the skills of a employees generating innovative ideas, which the organizational culture enables to utilize. Hence, companies' competencies to utilize big data operates as a capability today, creating sources of innovation. Moreover, the development of data-marketing model requires top management support and primarily understanding of data opportunities. Theory neglects project management capabilities thus, majority of participants consider them essential.

Marketing capabilities are developed by combining individual skills and knowledge with available resources. Training aims employees to develop skillsets to analyze and generate insights on data (Kumar et al. 2013). Day (2011) and Teece (2018) provide a model for developing capabilities, presented in the theoretical section. However, a distinct gap exists how data-driven capabilities are developed (Davenport et al. 2001). Hence, this study focused on examining how capabilities are developed in the corporation.

First, being essential to stop fearing data, as data needs to be utilized courageously, with increasing understanding which requires common language and vocabulary within a corporation. Subsequently, data ownership and governance models are fundamental in

developing data-driven capabilities. Additionally, from practitioner's perspective data democratization is fundamental. As data is often considered complex and challenging to understand, therefore visualized data further contributes enhanced data utilization. Furthermore, the corporation utilizes Carter's Maturity Model describing the data-driven capabilities.

Practitioners consider developing data-marketing capabilities internally more important. Surprisingly, top management training is viewed more vital than employee level training. Thus, data-marketing capabilities can be acquired through employee training, recruiting or purchasing externally. Both, employee training and recruiting novel expertise is required to reconfigure the required skillsets in applying data-driven marketing. Each employee is responsible of self-development and self-learning. As the model enables continuous development providing employees weekly with hours. The corporation has innovated models ensuring the continuous development of desired capabilities and skillsets of employees, enabling a wider range of capabilities. However, a bigger solution suggested at the societal level, *"in schools marketing should have a mandatory minor in computing, as marketing today is really technical. Skillsets are created at school and further processed in the work life"* (Interviewee 8).

### **How companies apply data-driven marketing models?**

The evidence indicates that data-driven technologies and marketing analytics systems are highly underutilized in all companies. Out of the four companies in this research, Company A, obtains the most resources and capabilities to strive data-driven strategies. The rest of the companies apply data-orientation according to available resources and capabilities. However, all subsidiaries data-orientation clearly as the corporations' direction, by collecting, interoperating and utilizing data with appropriate tools and technologies.

This study examined how data-marketing models are applied by exploiting Johnson et al. (2019) five stages of data-marketing implementation model. As it explains how companies best capture, integrate, analyzes data in marketing decisions using emerging technologies and techniques. This following chapters summarize the implementation process from practitioner's perspective. As applying data-marketing models are considered as a complex and time-consuming process.

Beginning with analytical technology implementation into daily operation. By constantly visualizing data into employees' everyday lives, hence it integrates more effectively as a part of work tasks. From practitioner's perspective the selection of appropriate metrics is crucial in terms of successful implementation. Being clear, everything can't be followed as the results confirm the main pitfall for managers is choosing wrong metrics or choosing no metrics at all. Suggesting, the evaluation to begin with defining clear objectives and metrics.

Subsequently, analytics begin to show results and departments value the significance of analytics (Järvinen & Karjaluoto 2015; Wedel & Kannan 2016). During this stage descriptive analytic methods are applied. The corporation confirms artificial intelligence projects, clustering segmentation, customer tracking, consumer journey mapping, and deeper consumer analysis as well as customer lifetime value estimations are being implemented in this stage.

During third stage, a data warehouse *Miilu* was constructed and concurrently, as all data was centralized, a novel data analytics system Tableau was adapted. Interestingly, despite the centralized data warehouse, all subsidiaries confirmed using additional data collection services specified for each companies' needs. In the commitment stage new data-driven strategies were set in motion revealing the need to invest in data technologies, analytics and utilization.

This study contributes that successful implementation requires a *culture shift* to data-orientation. To integrate data as part of organizational culture through continuous learning and investments in digital analytics (Erevelles et al. 2016). From practitioner's perspective it is currently an ongoing process. As the data development department conducts trainings for employees to perform daily work tasks based on data as well as analytics system trainings (Tableau). Foremost stressing the importance of ensuring the employees to obtain adequate rights and user levels.

Finally, mature stage of *data-driven marketing* is reached. Different functions and departments work closely together as data and analytics are applied widely across all departments across organization. Supporting scholars (Davenport et al. 2012; Erevelles et al. 2016; Sheng et al. 2017) claiming advanced data-marketing organizations apply data analytics across all departments not just marketing.

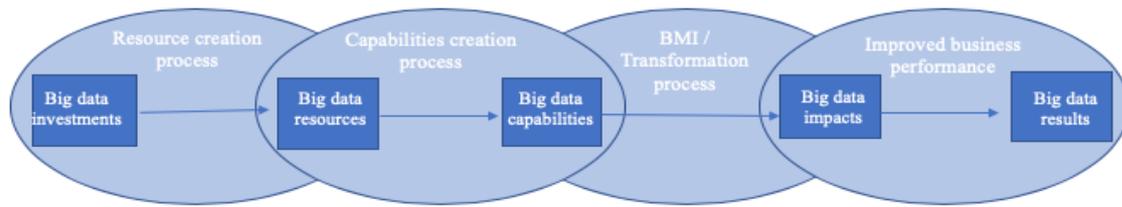


Figure 16. Stages of Applying Data-driven Marketing

In conclusion, Figure 16 summarizes the entire process of developing and applying data-marketing models to encapsulate the answer of the main research question. During the early stages, resources are being developed and the primary focus is on data and technologies. Furthermore, big data investments are made, and technological factors are being increased. Resources need to be developed into capabilities; therefore, the following phase is capability creation process. Required novel skillsets and capabilities are being developed such as marketing, technological, analytical and big data capabilities. Moreover, data-driven organizational culture is being developed resulting in business model innovation, the transformation stage. During this stage the big data and data-orientation impacts begin to reveal. Finally, through implementation, continuous monitoring and development data yields to actionable knowledge, resulting in improved business achievements.

### **What are the opportunities and challenges in applying data-driven marketing?**

The benefits of data-driven marketing, fact-based decision-making and data utilization are very well acknowledged and indisputable. Various factors summarized in figure 17. hinder and encourage data-orientation and the development of data-marketing models. Moreover, this study found that data-driven marketing improves the accountability of marketing departments. However, a struggle remains in balancing with the allocation of limited resources. As the ever-increasing competitive environment requires more effective data utilization (Quinn et al 2016). However, this research contributes, that as top management comprehends the benefits of data-marketing, they encourage employees to develop required skillsets. According to results, managerial pressure towards data-marketing is justified as it translates into increased performance (German et al. 2013).



Figure 17. Opportunities and Challenges

Most remarkable opportunities data-driven marketing offers are increased customer knowledge as customer data provides improved understanding on customer behavior and responses to marketing. Being able to offer better targeted and more personalized marketing. The rise of advanced data-analytics aid companies to maximize performance and the effectiveness of marketing efforts. Additionally, more efficient allocation of assets based on data (Kumar et al. 2013).

Majority of the challenges focus on developing data-driven resources and capabilities. As surprise, the lack of resources was confirmed in all companies. From the practitioner's perspective the adequacy of internal resources is a primary challenge. The development of data-driven organizational culture was identified as a major challenge by executives. Furthermore, changing the current operating models is considered the more challenging the bigger company in question. Data and information overload are beyond the capacity to fully understand and act upon (Davenport et al. 2001), creating challenges to distinguish relevant data and to enhance it into an exploitable form.

## 6.2. Theoretical Contributions

This study provides relevant theoretical contributions. Firstly, this research increases knowledge and understanding on data-driven marketing. As it demonstrates a simplified data-marketing process (Chiehyeon et al. 2018; Gandomi & Haider 2015; Järvinen & Karjaluoto 2015; van Bruggen et al. 2001). Furthermore, increasing knowledge on big data as a phenomenon by applying existing theories with it. Examining the connections between big data, marketing and company context. Demonstrating how the extant theoretical foundations RBT, VIRO and big data enable business model innovation and how Johnson et al. (2019) implementation process is exploited in conjunction with data-marketing.

Secondly, this research takes a novel approach on studying data-marketing. As this study explains how companies become data-driven, furthermore, combining RBT and BMI theories in the context of data-driven marketing. Demonstrating how RBT explains big data and data-orientation impacts on marketing and business performance. Presenting a novel description on how companies apply data-marketing models. Beginning from demonstrating data-marketing process (Järvinen & Karjaluoto 20115), subsequently identifying the required assets (Teece 2010) to conduct business model innovation in the context of data-driven marketing. Therefore, this research demonstrates RBT and BMI theories to be valid approaches for analyzing the implementation of data-marketing models. This study identifies business model to be both resources and capabilities (Seddon 2014) as well as an important determinant of its success and profitability. However, previous literature has mainly focused on marketing strategies, international marketing etc. fields, neglecting to combine novel data-driven marketing approach with the aforementioned theories.

Subsequently, this research identifies primary resources and capabilities required to successful develop data-marketing models from the company perspective. Moreover, this study provides advanced knowledge on developing data-driven resources and capabilities. Combining business model innovation literature with other tools and methods such as innovation process, the 4I model (Frankenberger et al. 2013), nine building blocks for BMI and business model canvas (Osterwalder & Pigneur 2010).

The final contribution this study provides, is an overview of the primary opportunities and challenges companies face when applying data-orientation and data-driven marketing. Identifying resources and capability related challenges as well as operational challenges companies encounter. Thus, this study provides recommendations for solving these challenges. The research results confirm evidence proposing the primary challenge is the lack of internal data-driven resources and capabilities. The benefits of data-driven marketing are indisputable, hence this study supports the identified benefits from previous literature.

### **6.3. Managerial Implications**

Connecting theory to practice plays a major role in this study. Bridging the gap between scholars and practitioners. The novel data-driven research area is often lead by practitioner's as Johnson et al. (2019) state, that in the mature stage of data-marketing implementation

companies begin to trial novel data-driven strategies to enhance business models in the big data environment. Therefore, this research attempts to concretize the abstract theories on RBT and BMI in the context of data-marketing to benefit the practitioners by providing insights through a case study. Offering building blocks for practitioners to develop a coherent understanding on the novel phenomenon. Moreover, this research provides managerial implications aiming to help practitioner's apply data-marketing models and avoid the typical pitfalls in implementation. Furthermore, providing a coherent model (Figure 16) that explains the development of required data-driven resources and capabilities to develop data-marketing models from a business model innovation perspective. Additionally, explains the big data phenomenon and its implications in marketing and technology context.

This study identified the primary resources required in developing data-driven marketing models to benefit practitioners in the *resource creation process*. Furthermore, providing practices, models and new knowledge combining big data and value creation in the marketing context. Additionally, this study increases knowledge on data-driven resources stressing the importance of adequate internal resources obtaining appropriate technologies, data-driven organizational culture and employees with desired data skillsets. This research offers various models for practitioners to benefit from in *capabilities creation process*, such as *maturity model* (Figure 14) and (Figure 15) the *required elements in developing data culture*; maturity, technological capabilities and culture. Thus, Teece et al. (1997) criticize companies to rely too much on past experience complicating the changes in organizational structure to better respond to evolvments in market conditions. main pitfall in developing organizational culture. Finally, figure 15. identifying the *enablers for developing data-driven capabilities* and applying data-marketing.

This study confirms innovation process and business model innovation to occur in various ways providing practitioners valuable new knowledge by combining business model innovation theory with big data. Thus, confirming business model innovation and big data utilization being company dependent. Surprisingly the case studies identified humans as the major pitfall in business model innovation, not company assets such as technologies and infrastructure. Finally, this research provides actual examples on benefits and results based on data-driven marketing

such as increased consumer knowledge, fact-based decision making, more efficient marketing and efficient resource allocation as freeing human resources for other productive use.

Additionally, to improved knowledge on data-driven marketing this study offers tools and methods such as *REAN-model*, *business model canvas*, 4I Frankenberger et al. (2013) *implementation process* by Johnson et al. (2019) to ease the efforts of applying data-marketing models. In conclusion, from the practitioner's perspective developing and applying data-orientation and -marketing report both opportunities and successes as well as resource and capability challenges.

#### **6.4. Limitations and Future Research**

There are certain limitations that apply to this research. This study assumed a broader perspective to examine how companies develop data-driven marketing models and to identify resources and capabilities it requires. This study was conducted in a single research context in a Finnish media corporation additionally, the sample was relatively small. The findings of this study are supposed to be generalizable for Finish companies, however more research in different contexts is definitely required to confirm this assumption. Despite the relatively small sample, this study succeeded in including managers from various departments to examine the combined resources and capabilities of different departments, not solely marketing. However, marketing agencies and other service providers were excluded from this study.

This study took an interesting approach by including different sized companies. Thus, practitioners would benefit from further research explaining the differences of required resources and capabilities to conduct business model innovation in the context of data-driven marketing. Furthermore, to further demonstrate journey of how companies apply data-marketing tools and technologies and become fully data-oriented. This study evidenced that the available resources and capabilities are generally dependent on company size hence, affecting the investment volumes on data-driven marketing tools, technologies and capabilities. In turn, as the empirical section of this theses mainly focused on media and marketing industry, future research could take a broader industry scope to ensure the generalizability of the results.

Both theoretical and empirical section provides broad definitions for the central vocabulary of *big data*, *marketing analytics*, *business model innovation* and *data marketing*. Therefore,

common, well-defined and specific definitions and terminology would benefit practitioners in applying data-driven marketing in order to find common understanding and improve communication. Furthermore, combining big data and business model innovation in scientific research is still narrow. However, extant literature considers business model innovation today more profitable over product or service innovation.

Another future research agenda would be to further examine how data-driven organizational culture and capabilities are developed. The current literature considers the required resources and capabilities rather clear, thus future research may overcome these challenges by increasing knowledge on how change is managed within an organization and how novel capabilities are being developed in a more practical level.

The results indicate that companies face significant challenges in the final phases of big data and marketing analytics implementation. Moreover, the application of novel and complex data analytics and technologies across entire organization is a challenging and time-consuming process. Therefore, more concrete studies are in place to aid the implementation of data-driven technologies and analytic systems within an organization. More research is needed to understand what factors affect the implementation process. Furthermore, scholars should take a more technological approach as the theory and results of this study confirm, data-driven marketing requires advanced technical capabilities as much as marketing capabilities.

Additionally, the extant theory suggests trailblazer companies (Netflix, Amazon, etc..) are utilizing data-driven innovation methods already today by combining big data and innovation to create automated processes. The novel area of automation was also mentioned during the empirical study by (Interviewee 6). However, the corporation acknowledges that they are not yet there, but it is the primary objective – to combine and exploit big data and innovation into automate processes and shorten the so-called feedback loop. Therefore, further research on how the process should be constructed and applied within organizations would remarkably aid practitioners.

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## **APPENDICES:**

### **APPENDIX 1. Interview questions**

Name:

Company:

Position:

#### **Data markkinointi**

- Millä perusteilla tällä hetkellä toteutate markkinointia?
- Mitä data lähtöinen markkinointi/liiketoiminta on?
- Miten digitaalisuus/data ja nopea teknologian kehitys on vaikuttanut yrityksenne liiketoimintaan/markkinointiin?
- Missä määrin yrityksenne tekee tällä hetkellä datalähtöistä markkinointia?
- Kuinka tärkeäksi koette datalähtöisen markkinoinnin nyt ja tulevaisuudessa?

#### **Motiivit ja tavoitteet datan hyödyntämisessä markkinoinnissa:**

- Miksi hyödynnätte dataa markkinoinnissa?
- Mihin ja miten hyödynnätte dataa/datalähtöistä markkinointia tällä hetkellä
- Mihin voisitte mahdollisesti hyödyntää/Mihin teillä on tavoitteena tulevaisuudessa hyödyntää kerättyä dataa?
- Millaisia tuloksia olette saavuttaneet data lähtöisen markkinoin avulla?

#### **Kuvaile lyhyesti nykytilannetta**

- Nykyiset liiketoiminta/markkinointimallit, data lähteet, analytiikka, projektit

#### **Miten toteutate tällä hetkellä datalähtöistä markkinointia?**

- Toteutateko datalähtöistä markkinointia koko konsernin tasolla vai vain tietyissä yrityksissä, yksiköissä, kampanjoissa, projekteissa jne?
- Mistä ja miten kanavista keräätte dataa?
- Millaista dataa keräätte? Miksi?
- Miten keräämämme data säilötään?
- Mitä analytiikka järjestelmiä hyödynnätte/käytätte?
- Miten analysoitte keräämämme dataa?
- Tuleeko kaikki kerätty data keskitetyksi jollekin tietylle alustalle?
- Hyödynnetäänkö dataa markkinoinnissa mielestäsi tarpeeksi/täydellä potentiaalilla?
- Miten tulokset vaikuttavat toimintaanne?
- Miten mittaatte markkinointi toimintoja?

#### **Resurssit ja kyvykkyydet:**

- Mitä datalähtöisen markkinoinnin toteuttaminen mielestänne edellyttää yritykseltä?
  - Johtoryhmältä?
- Millainen on nykytilanne resurssien ja kyvykkyyksien suhteen?
  - mitä resursseja & kyvykkyyksiä tarvitaan lisää
  - kehittää
  - ostaa ulkopuolelta
- Miten kyvykkyyksiä kehitetään
  - Mikä on johtoryhmän rooli?
- Miten datalähtöistä kulttuuria kehitetään konsernissa?
- Mitä teette itse/mitä ulkoistatte ja miksi? Mitä ulkopuolelta/kolmansilta osapuolilta/partnereilta? Millaista? Ostatteko ulkopuolelta dataa/data palveluja?

### **BUSINESS MODEL INNOVATION:**

- BMI voi toteuttaa eri tavoin; lisäämällä uusia aktiviteetteja nykyiseen malliin, linkittämällä aktiviteetteja uudella tavalla tai muuttama yhtä tai useampaa osaa mallista. Miten teillä on tehty liiketoiminnan kehittämistä?
- Miten yrityksessä innovoidaan, millainen innovointi prosessi on?
- Miksi olette päättäneet lähteä kehittämään datalähtöisiä liike toiminta/markkinointimalleja?
- Asettaavatko nykyiset liiketoiminta/markkinointimallit edellytyksiä tai rajoitteita uusien kehittämisessä/implementoinnissa?
- Mitä muutoksia olette joutuneet tekemään hyödyntääksenne datalähtöistä markkinointia?
- Miten olette hankkineet uutta tietotaitoa tai osaamista?
- Miten nykyinen teknologia infrastruktuuri vaikuttaa uusien mallien kehittämiseen?
- Innovoinnin kehittäminen vanhojen liike toiminta/markkinointimallien pohjalte vs. kokonaan uuden kehittäminen
- Millaisia polkuriippuvaisuuksia on noussut esiin; esim. nykyinen data/teknologia infrastruktuuri on rajoittanut sitä, mitä tulevaisuudessa voi tehdä.
- Onko ollut tilanteita, jossa on jouduttu palaamaan takasin päin/ lopettamaan jonkin ”polun”
- Onko sellaisia valintoja tehty, jotka rajoittavat/tuottavat haasteita tulevaisuuden valintoja/suunitelmia ajatellen

### **IMPLEMENTATION**

- Miten olette lähteneet käytännön tasolla implementoimaan/jalkauttamaan uusia liiketoiminta/datamarkkinointi malleja?

### **Hyödyt, haasteet onnistuminen:**

- Mitkä asiat ovat mielestänne tärkeimpiä ratkaisevia tekijöitä datalähtöisen markkinoinnin onnistumisessa?
- Missä asioissa olette onnistuneet tai epäonnistuneet kun olette lähteneet toteuttamaan datalähtöistä markkinointia?
- Mitä hyötyjä koette saavanne datalähtöisestä markkinoinnista?
- Mitkä asiat koette haastaviksi datalähtöisen markkinoinnin toteuttamisessa?