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REINING THE POWER OF BIG DATA

A Study of How Big Data Affects Business Model Development in the Swedish TV-industry

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Abstract

Companies have always been collecting data, but during recent years technological advancement has allowed them to store and analyze quantities of data that earlier was unimaginable. The age of BIG DATA has come. Big data has reformed how companies look at their market, evaluate their business and analyze their customers. Previously unknown players who rein the power of big data are now disrupting industries and outcompeting legacy players in their own markets. This study looks in to one of these industries, namely the broadcasting industry in Sweden. During recent years the industry has seen disruption from Netflix, a player driven by big data analytics that has forced legacy players to take action and start implementing big data practices. But how will it affect their way of doing business?

The aim of the study is to explore the current situation in order to gain an understanding of why it is important for the existing players to implement big data and how it affects their business models. We strive to add to the limited academic research on big data by relating it to business model theories. The research method of choice for this thesis has been a qualitative case study where we have carried out in-depth interviews with representatives from all main legacy broadcasters in the Swedish TV-industry. Business model theory has then been applied to our findings in order to explain the obtained empirical results.

Our analysis shows that big data affects the industry to a great extent. With a framework built around business model theories we are able to show that business models can be used as a focal device in order to understand how big data creates value for broadcasters. Three groups of value contributing opportunities were identified in *Marketing and CRM*, *Advertising* and *Product and Content*, as well as the main hindrances to successfully implement big data.

Keywords: Big Data, Business Models, Business Model Innovation, Innovation, Broadcasters

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1. Introduction

The Swedish TV-industry is undergoing a phase of creative disruption. What used to be a linear B2B broadcasting business where TV-channels would aggregate and transmit content to households with a TV-receiver through the operators infrastructure is slowly turning into a B2C business where TV-channels target consumers directly through the open internet, surpassing operators and taking control of the customer relationship. A shift from ‘viewer’ to ‘user’ is taking place as the possibilities for the channels to engage- and interact with customers is reaching new heights. This customer ownership, combined with making content available directly through their own platforms such as smartphone applications, websites and social media outlets constitutes the base for gathering data about how the users behave on the platforms, how they consume and interact with the offered content and what content is actually driving sales and user engagement. The amount of data gathered through following users around the websites can quickly amount to very large quantities as every single click, scroll or started stream builds on the existing data, slowly building a voluminous data layer that can be dissected and analyzed in order to extract important user insights. This development places obvious challenges on the industry’s legacy players as they have to adapt, both organizationally and procedurally, in order to be able to capture the potential competitive advantages that can be obtained through leveraging Big data. But how can Swedish TV-channels gain from using data analytics, and how does this relate to the business models employed? And what is the status of the main legacy players on the Swedish TV-market? Do they work with Big data analytics today, and if so to what extent is this integrated into their everyday business and in what way? These are all questions of great importance to the future of the Swedish TV-industry and also function as an example of an industry that is being exposed to competition from new, global digital players such as Google, Netflix, Facebook and Amazon that are challenging old business models. According to Teece (2010) a business model reflects “management’s hypothesis about what customers want, how they want it, and how the enterprise can organize to best meet those needs, get paid for doing so, and make a profit”. Teece’s wording pinpoints the changes brought about as Big data analytics is starting to permeate the TV industry and its legacy actors, as “management’s hypothesis” potentially can be replaced by “statistically confirmable data” if leveraging data analytics in the right way.

According to strategy consultancy Mediavision the Swedish TV-market underwent a major shift in consumption patterns during 2013, as traditional broadcast viewers to an increasing extent moved online or to OTT-viewing¹. The shift in consumption continued during 2014, but this time it was accompanied by a shift also in revenues, as traditional TV advertising spend was reduced despite favorable macroeconomic conditions and a growing ad market, something that hasn't occurred since the launch of commercial TV in Sweden. At the same time the total Swedish TV-market reached a new record high in 2014, both in terms of ad and consumer revenues. To a high degree this transition in revenue is a result of a strong revenue growth in OTT-services such as Netflix and YouTube that has been able to capitalize to a very high overall demand among consumers for video content (Mediavision, 2015).

That an information advantage can function as an important base in developing a competitive advantage is not a new idea. Companies and other organizations have been collecting data about their customers, partners and competitors for decades. In recent years, a new concept coined Big Data has gotten an increasing amount of attention, and this trend show no signs of slowing down (BellPottinger, 2014). Through the fast dispersal of internet access throughout the developed world in recent years (Internetlivestats, 2015) and the increasing share of business transactions taking place online in the digital economy, the amounts of data available for businesses to capture about how users act and interact with their offering has exploded. Together with lowered costs associated with digital storage as well as an increase in actual computing power, even the most basic smart phone today has a greater number-crunching power than NASA did at the time of the moon landing in 1969 (Economist, 2015), this development has dramatically increased the amount of data that can be collected, stored and analyzed. The American retail giant Wal-Mart handles more than one million customer transactions every hour, feeding more than 2,5 petabytes² into its databases. The amount of data processed by Wal-Mart every hour is roughly the equivalent of 167 times the books in America's Library of Congress (Economist, 2010).

Big data is today a very popular buzzword, often used without further reflection regarding what the term actually implies. According to Manyika et al (2011), the term Big data refers to “datasets whose size is beyond the ability of typical database software tools to capture, store,

¹ See Appendix 2 for definitions

² 1 PB = 1.000 TB, or 1 million GB

manage, and analyze,” the McKinsey researchers recognize that “this definition is intentionally subjective and incorporates a moving definition of how big a dataset needs to be in order to be considered big data”. By definition, what the concept of Big data holds is constantly changing as technological advances cause the capability of software programs to increase (Manyika et al, 2011). As the number of connected individuals and connected devices (such as watches, cars and smartphones) across the globe continue to rise, the growth in data numbers is forecasted to continue, pushing the boundaries of what will actually be classified as Big data.

During the course of the 21st century, the concept of business model development has emerged as an important tool for analyzing the strategies employed by different business practitioners and companies. According to Zott et al (2011) the area has gotten an increased attention among scholars and researchers within the fields of business and strategy. The concept of developing new business models as a consequence of changed technological conditions and possibilities has been studied by Chesbrough and Rosenbloom (2002) who was able to conclude that incumbent firms often find it hard to develop new business models in relation to rapid technological development. This relates to the concept of big data and data analytics in that recent years development and profound changes on the TV-market in terms of distribution of video content through the internet has caused existing players to adapt and relate their operations to the concept of big data. Where business models change and services transition from unidirectional broadcasts to two-way communication where the ‘viewer’ evolve into ‘user’ and where an increased interaction between content provider (legacy TV-channel) and user is enabled this places demands on data analytics in order to be able to leverage the new possibilities this new reality offers. Johnson et al (2008) show that managers at incumbent companies in industries exposed to technological disruption find the development of new business models difficult.

Hence, it is interesting to merge the two concepts of ‘creative disruption’ in the TV-industry with that of ‘big data analytics’ as the first concept is currently taking place and the second is a possible source for developing a competitive advantage. Thus, the main purpose of this thesis is to research how big data analytics relate to business model development at Swedish legacy broadcasters as of today by plotting how incumbent players work with big data, what their practices look like and what they see as the main possibilities in relation to data analytics going forward.

1.1 Formulation of the Problem

We have identified a gap in existing research regarding how big data relates to business model development and how the concept is implemented once at legacy players in an industry being disrupted by technological advances. We have identified the Swedish TV-industry as an industry where such a development is currently taking place, and hence chosen this as the base for our research. With fierce competition from global players such as Netflix and HBO entering the market by launching OTT-services, legacy players feel pressure on revenues and profitability as old business models breaks down to give birth to new ones. In this reality, being able to leverage the opportunities that the disruptive technological development bring about becomes crucial for legacy players trying to defend and/or develop their position in the value chain and ultimately ensure their own survival. One such technological opportunity is big data analytics. This thesis aims to bridge the gap in the literature regarding how big data relates to business model development as data analytics fundamentally changes the extent to which players in the Swedish TV-industry are able to analyze how their users interact with their offered service and engage in the supplied content.

1.2 Purpose and Method

The purpose of our research is to explore the use of big data among broadcasters on the Swedish TV-industry as of today, and how this relates to their business model. To attack this overarching purpose we will answer the four following research questions:

- (R1) How, and to what extent, are Swedish broadcasters utilizing big data?
- (R2) What is the main goal of using big data?
- (R3) What are the main hindrances for utilizing big data?
- (R4) How does big data relate to and affect the business model?

We will start our research on this area by carrying out a pre-study that focuses on realizing the overall status of the level of development in terms of big data usage at Swedish broadcasters as of today. After mapping out the general status of big data usage in the industry, we will narrow our focus to a selected number of players that will serve as examples and where we will conduct investigative case studies. The results from the pre-study will allow us to build the theoretical framework needed to conduct our analysis.

We will perform an explorative study by using several case studies in order to identify usage patterns of big data in today's media companies. The methodology utilized will be inductive where we will identify theory based in the empirical findings.

1.3 Delimitations

Due to geographical limitations we have chosen to delimit our study to the Swedish market. Given the explorative approach of the study, and the sensitive nature of the information discussed in the conducted in depth interviews, trust and referrals have played an integral part in assuring open interviews with the right people. Hence, conducting the study on a market we are familiar with and have the needed connections in has been necessary to ensure access to the companies where the case studies has been carried out. Within the Swedish TV-industry the major legacy broadcast players have been chosen to form the base for our case studies, as these companies serve as good examples of how incumbent firms have to develop new business models because of technological developments. We have chosen to limit our study to broadcaster rather than focusing on pure distribution or production companies further up/down the value chain. This choice was made as these are the players mainly affected by disruptive forces such as Netflix and HBO Nordic entering the market, and also since these companies are faced with new before unseen possibilities in relation to data analytics as they transition into OTT-distribution directly to consumers rather than distribution through a 3rd party distributor in a B2B-setting.

1.4 Expected Contributions

The main expected contribution of this thesis is to increase the understanding of how broadcasters work with big data today, how they use the information gathered from data analytics and in what way this information affects or enables the employed business model.

1.5 Disposition

To help structure the thesis in a way that enables the reader to follow the course of our research, we have divided the work into a number of different chapters. We start out with a chapter on the initially conducted pre-study. This is followed by a chapter presenting the reviewed literature and chapter four summarizing the theories used as a base throughout the

course of our research and when analyzing the empirical results. Chapter five aim to describe the methodological considerations and choices made throughout this study. In chapter six we present the results from the conducted case studies and in chapter seven we present our analysis of these results, the derived model for viewing big data practices in this particular industry as well as implications for practitioners and suggestions for future research. We finish up with our concluding remarks in chapter eight.

2. Pre-study

To be able to focus the research question on a field that would be as relevant as possible, both from a practical and academic perspective, we conducted a pre-study before starting our work on the actual case studies. In the following passages, the design and findings from the study will be presented and discussed. The sections end with our conclusions and how our findings affected the scope and focus of our main research questions for the thesis.

2.1 The Need for a Pre-study

The need for conducting a pre-study had two main origins. Firstly, scholarly work within the area of big data analytics in the Swedish TV-industry is much limited. Hence, a need arose to gain a basic understanding of the status and usage of big data among industry players.

Secondly, since the concept of big data is a fairly new topic and due to our limited experience from the industry, the pre study served as a means to acquire a basic understanding of the Swedish TV-industry in the context of usage of user generated data and advanced data analytics.

The pre-study helped distinguish our area of research and helped map out the current state of the Swedish TV-industry in terms of big data analytics.

2.2 Design of Pre-study

We approached the pre-study mainly from two different perspectives: industry- and firm level. Firstly, we spoke more generally with the interviewees about the current use of big data in the industry and their views on what direction the industry was moving in, what the major hindrances were for utilizing big data more efficiently or frequently and where they considered other actors in the field to be. The second perspective that we were interested in

learning more about during the pre-study was firm level and the firm specific intra-organizational challenges facing the different companies and organizations where the interviewees are or has been active. In addition to this we also wanted to know more about the current status of big data analytics in the individual organizations.

During the phase of the pre-study we spoke to a combination of practitioners, researchers, professors and consultants with knowledge about our topic. This gave us a multi faceted picture of the current state of the industry development in relation to big data analytics as well as an ide of the internal challenges and state of operations in the respective organizations. We also studied numerous documents, presentations and industry reports supplied to us from the pre-study respondents as part of our background research, and these as well provided a base for the pre-study findings presented in section 2.3. See Table 1 below for a complete list of respondents interviewed during our pre-study.

Date	Interviewee	Position, Company	Area of expertise	Location, Duration
2015-01-23	Christopher Rosenqvist	Affiliated Researcher Department of Marketing and Strategy, <i>SSE</i>	The Swedish TV-industry	SSE, 60 min
2015-01-29	Per Ljungberg	Head of Systems and Technology, <i>Development Unit Media Ericsson</i>	Telecommunications and data collection	SSE, 25 min
2015-02-05	Jens Welin	EVP & MD, <i>Starcom USA</i>	Big Data and online advertising	Telephone, 60 min
2015-02-10	Martin Österdahl	Former Director of Programming, <i>SVT</i>	Content production & programming	SSE, 30 min
2015-03-09	Natalia Borelius	Media Consultant/Analyst, <i>Mediavision</i>	Strategy and Business Development in the media industry	Mediavision, 75 min
2015-03-11	Carl Rosell	Developer, <i>Delta Projects</i>	Big Data and online advertising	Lunch restaurant, 75 min
2015-03-16	Gunilla Delin	Distribution Controller, <i>SBS Discovery Television</i>	TV Distribution	SBS Discovery Television, 75 min

Table 1: List of pre-study interviewees

The chosen method for the pre-study was to conduct semi-structured qualitative interviews with practitioners and researchers with knowledge about our area of research, in accordance with recommendations in methodological literature (Bryman and Bell, 2007). The interviews varied in length, between 25-75 minutes and all took place face-to-face except in one case when this was not possible due to convenience and geographical distance as the interviewee was based in the U.S. In this one case, the interview was done via phone. Conducting the interviews face-to-face in all cases possible facilitated a more open environment and eased interaction between interviewers and interviewees. In total, the pre-study comprised seven respondents.

Extensive notes were taken during and after the interviews and in the cases when the situation and surroundings allowed for it we also recorded our conversations. These recordings were then revisited and used to double-check the notes taken.

2.3 Findings

The first major conclusion from the pre-study was that of the relatively early stage that the Swedish TV-industry is in, in terms of exploitation of big data analytics and integration of customer insights and findings into day-to-day operations. According to all our research subjects, the concept of big data and use of data analytics in the Swedish TV-industry is a highly current area and a field that is receiving an increasing amount of attention and resources from legacy industry players and management teams. Netflix's entry on the Swedish market in 2012 was mentioned on several occasions and by several subjects pointed out as one of the most significant causes for the rise of big data practices in the industry. The notion that Netflix is actively working to analyze user data in order to personalize the service, make more accurate recommendations and predications about user behavior is something that has opened the eyes of Swedish TV-executives and made them more focused on developing data analytic practices themselves. Another finding that frequently came up during the pre-study was that broadcasters now (for the first time for many industry players) have access to much more detailed user data than what MMS-ratings and focus groups have been able to offer. This is a consequence as broadcasters go "straight to consumer" with OTT streaming services. Earlier the majority of Swedish broadcasters, with Viasat as the main exception, had content distribution and most of the customer relationship handled via a third party distributor such as Telia, Boxer or Comhem and TV-subscriptions were bundled together and sold as a package. Through the rise of OTT-services such as TV4 Play, broadcasters now own that part of the customer relationship and the transaction/subscription directly. Several respondents mentioned this as a major transition as broadcasters move from what has largely been a B2B business into selling direct to consumer B2C. This, in turn, offers a possibility to deepen the customer relationship, aggregate user data and develop a more customized offering.

The second major finding from the pre-study was that the legacy industry players are in need of developing their current business models in order to benefit from data analytic practices. Much of the decisions made in the industry regarding what programming to produce, or what

to acquire, have historically been based mainly on experience and ‘gut feeling’. Through the entrance of disruptive players such as Netflix that utilizes data to commission shows and data analytics to personalize their service gut feeling is no longer viable in order to stay competitive.

2.4 Conclusion of the Pre-study

The legacy players within the broadcast TV-industry are under an increasing amount of pressure from international players entering the market with disruptive technologies, namely big data analytic capabilities. This has changed the dynamic of the competitive landscape and is forcing the legacy players to shift their operations in accordance to new technology. As a result the legacy players have to adapt and develop their current business models in order to maintain their positions. From the findings in the pre-study we concluded that it would be interesting to study big data in respect to business model development. This decision made us introduce the forth research question:

(R4) How does big data relate to and affect the business model?

2.5 Additional Effects on the Main Study

The pre-study participants further recommended industry professionals for us to interview for the main study and made it possible for us to gain access to these people through their referral. This proved an essential contribution since we ourselves did not possess the access points needed. The topic of big data and how this is related to business models is of sensitive nature since it is a matter of competitive advantage. Therefore it was important for us to get in touch with the right people and have the legitimacy of a referral that helped us open doors. The pre-study participants also helped us rank the legacy players in terms of how far they had come in the implementation of big data practices, which was of great use when deciding who to speak to first and how to phrase the questions.

3. A Background to Big Data

Data has become something affecting all areas of the global economy. (Davenport; 2013, Manyika et al; 2011). Companies all around the world gather trillions of bytes of information

about customer, suppliers and operations. This is natural since all interaction companies have with customers generate trails of data, data that is a byproduct of other activities that the customer performs. In short, the companies are gathering big data. The reason that companies gather data is in order to create value and increase their competitiveness. In the long run this is also beneficial for the economy as a whole (Manyika et al, 2011).

3.1 Definition of Big data

At the moment there is no overarching definition of what big data means. Manyika et al. (2011) uses the definition: “‘Big data’ refers to datasets whose size is beyond the ability of typical database software tools to capture, store, manage and analyze” (Manyika et al, 2011). They have intentionally made the definition subjective and moving in terms of how big a dataset needs to be to be considered ‘big’. The reason for this is that as technology advances over time, the size of datasets that are considered big data will also increase. A fixed definition of big data as a quantity will be problematic when comparing sectors, due to what software and tools that are available for the particular industry. In our paper we will also use Manyika et al’s definition of big data.

3.2 Big Data is Everywhere

“Digital data is now everywhere – in every sector, in every economy, in every organization and user of digital technology” (Manyika et al, 2011). The topic is thereby relevant for all leaders in all types of organizations, and not just for a few data geeks. The rapid development of technologies and the continuing decrease in price (see Moore’s Law), has led to greater ability to store, aggregate, and combine data in order to perform advanced analysis. (Lyman and Varian, 2011). More sophisticated techniques of analyzing data are developed continually as a result of better hardware and software. Adding the ever-growing internet of things, new data-points and possibilities to data-mine appear regularly (Manyika et al, 2011).

3.3 Effects of Big Data

Big data will create value in all sectors of the global economy, according to Manyika et al (2011). We will see new innovations, increased productivity, and growth of companies. Moreover, there will also appear new types of business models, which will lead to new competition and value capturing. When companies start to harness the power of big data it

will lead to disruptions in the market since they will gain competitive advantages over others (Manyika et al, 2011). Across all industries evidence start to appear that companies who utilizes big data are capturing more value. Value that lagging companies loses (Brynjolfsson et al, 2011). Consumers, companies and economic sectors that try to exploit big data's potential will drive the development. The reason for the recent explosion in this area is that a series of technology trends are accelerating and converging, and this is affecting the economic landscape (Manyika et al, 2011).

However, in order to capture the value that big data can provide the industry and policy makers are also facing challenges. Amongst them is the need of analytical and managerial talent, which at the moment is in shortage. Other challenges are concerning the infrastructure that needs to be in place, such as incentives and competition to encourage continued innovation. Moreover, policy makers need to create safeguards that address public concerns about big data, in terms of privacy (Manyika et al. 2011).

3.4 How Big Data Delivers Value

Manyika et al. (2011) identifies five areas where big data can help leverage value creation in terms of how organizations should be designed, organized and managed. These are: 1) creating transparency, 2) enabling experimentation to discover needs, expose variability, and improve performance, 3) segment populations to customize actions, 4) replacing/supporting human decision making with automated algorithms, and 5) innovating new business models, products, and services.

3.4.1 Creating Transparency

If stakeholders could get data in an accessible and relevant manner it could create enormous value. For example, by connecting separate department in the public sector, through big data, could reduce costly search and processing time. Moreover, big data could help companies to cut time to market and improve the quality of their products by integrating different business units to help in consistent development of innovations (Manyika et al, 2011). Davenport (2013), however, states that big data does not only benefit companies and organizations. It also transfers a lot of the economic surplus that it captures to consumers.

3.4.2 Enabling Experimentation to Discover Needs, Expose Variability and Improve Performance

As companies gather more digital data they are able to follow how they are performing, both externally and internally, in real or near real time. This makes it possible to set up new processes and create controlled experiments, which makes it possible to understand the root of performance variability. The leaders can then manage these issues to a higher level with their increased knowledge (Manyika et al, 2011).

3.4.3 Segmenting Populations to Customize Actions

With more data and more precise data it is possible for companies to create more specific segmentations, which in turn could be used to create more tailored products and services for these customer groups' needs. This could, for example, be done through real-time micro-segmentation to target customers with promotions and advertising (Manyika et al, 2011).

3.4.4 Replacing/Supporting Human Decision Making with Automated Algorithms

Big data will improve decision-making, minimize risks, and reveal valuable insights that otherwise would have been missed through sophisticated analytics. Automated algorithms can help companies to optimize areas such as inventory management and pricing in response to real-time sales. Automation might be possible for some companies, but not for all. For these companies that cannot automate, big data will still be valuable in terms of complementing and augmenting their decision-making. It will be possible to perform huge analyzes of entire datasets, which would not be possible for an individual with a spreadsheet (Manyika et al, 2011).

3.4.5 Innovating New Business Models, Products, and Services

The use of big data enhances companies' abilities to create new products and services, improve existing ones, and develop completely new business models. By gathering data and using advanced analytic techniques the companies are able to improve their ability to invent the next generation of products and services, by improving their knowledge (Manyika et al, 2011).

3.5 Big Data Will Be a Core Component for Competition and Growth

According to Manyika et al (2011), the use of big data is growing in importance for companies when it comes to outperforming their competitors. The firms that understand this and adapt to it will see value gains in their business, often at the expense of their competitors who have not adapted. It is therefore important for leaders to reorganize the possibilities and adapt their organizations to the big data era. Even though the transformation will take time and be costly, the competitive advantage that comes with it in a long-term perspective will outweigh the investment needed. If you fail to adapt you will most likely be left behind (Manyika et al, 2011).

As we have seen earlier big data will deliver several sources for value for existing companies, but it will also create completely new categories of companies, such as those that aggregate and analyze data. Companies that are in the middle of large information flows have an advantage in the market. This will lead to new sources of value and also big shifts in value in industries (Manyika et al, 2011).

3.6 Issues Surrounding Big Data

Manyika et al, (2011) identifies five areas that need to be dealt with in order to capture the full value that big data can provide. These are: 1) data policies, 2) technology and techniques, 3) organizational change and talent, 4) access to data, and 5) industry structure.

3.6.1 Issues Concerning Data Policies

As big data amounts are exchanged between organizations the need for regulative policies increases. This includes, amongst others, policies concerning: privacy, security, intellectual property, and liability. The topic of privacy is often mentioned in connection with data gathering, as it is something of great importance to consumers due to the sensitivity of some data that is gathered (Manyika et al, 2011). Even though, many consumers start to see the benefit that big data could provide, they still look upon it with skepticism, and as the field grows so does the question of privacy also (Steen and Ström, 2011). The issue needs to be regulated through policies, but this will come with a trade off between privacy and utility (Manyika et al, 2011).

Another closely related concern is data security, namely how to protect sensitive or private data. From time to time you hear about data breaches where personal consumer information, confidential corporate information or even national security secrets are leaked. Due to this, there will be a growing need for technological improvements and policy tools to protect the data (Manyika et al, 2011).

Moreover, the rise of big data will also call for legal actions and developments. Especially since data has fundamentally different aspects from other assets. For example, data can easily be copied and be combined with other data. It is also possible to share data simultaneously to several persons. This gives rise to questions about intellectual property, ownership, and liability. From a legal point of view this needs to be clarified (Manyika et al, 2011).

3.6.2 Issues Concerning Technology and Techniques

Organizations need to use new technologies and techniques to capture the full value of big data. In terms of technologies there will be a need for new types of storage, computing, and analytical software. Also, when it comes to techniques the companies need to reinvent themselves and use new types of analyses. The issues arise when it comes to maturity of data in the organization. Sometimes legacy systems, incompatible standards and formats will halt the progression and prevent analytics of the data. Moreover, there will be other problems when computing power spurs the technological advancements forward. Companies need to be on top of this in order to not fall behind, meaning that they continually need to invest and develop in new technologies and techniques (Manyika et al, 2011).

3.6.3 Issues Concerning Organizational Change and Talent

Due to the rapid evolution of this area, organizational leaders often lack the understanding of the value that big data can provide or how to unlock it, according to Manyika et al (2011). In those cases, these organizations are facing big challenges since new entrants who understand and use the data to their advantage may surpass the existing players and out compete them. Moreover, the industries are facing problems since the demand for talents knowing big data has exceeded the supply. Meaning that even though the organizations understand the need and value of big data they might not be able to implement it since they cannot get hold of the right talent to drive the projects (Manyika et al, 2011) In order to solve this companies needs to

focus on develop talent that could provide the organization with insights and help them capture value from big data (Davenport, 2013). The organizations will also face challenges in terms of changing structures of workflow and incentives in order to gain the full value of big data (Manyika et al. 2011).

3.6.4 Issues Concerning Access to Data

To enable the full use of big data companies need to integrate information form multiple data sources. This is possible in some industries, where you can purchase data from other players, but in others players are more protective of their data. To get access to third-party data is then not that straight forward. The reason for the protectiveness could be that stakeholders do not have the economic incentive to share their data or that they see the data as a source for competitive advantage. It is then necessary to find good value proposition for the holders of the data, so that an exchange could take place (Manyika et al, 2011).

3.6.5 Issues Concerning Industry Structure

Manyika et al (2011) means that some industries will be more difficult to transform to be more data-driven and leverage the benefits from big data. These industries are often characterized by a lack of competitive intensity, a lack of performance transparency and a high concentration of the profit pools. An example is the public sector where the competitive pressure limits the efficiency and productivity, due to this they will face bigger barriers in gaining the full value of big data. When the decision of implementing a big data approach comes up in these industries the players are not as inclined to implement the changes, due to the fact that the implementation will be at the expense of other projects. It is then important for organization leaders to consider how the industry structures will develop in the future, when other actors rein the power of big data, and then determine how to best optimize their value creation (Manyika et al, 2011).

3.7 Summary

The conducted background research on big data shows that the field is new and that there are few academic studies covering the business model perspective of the area. One of the best and most comprehensive sources to get an understanding for the field is still the McKinsey report compiled by Manyika et al in 2011. Their report is extensive in its evaluation of big data, but

it should only be seen as guidance for future research. The field will continue to expand as more companies engage in big data practices.

As seen in the background section the field is insufficient in its research concerning the effect big data has on business models, and their development. Hence, we can conclude that the scope of this study is of importance and hope it will shed some light on an area highly relevant to companies who are to engage in big data practices. The following section will present the theoretical framework about business models in a more general sense, and not specific to big data.

4. Theoretical Framework

The following sections will present an overview of the business model literature that will function as the main theoretical framework for analyzing our empirical findings, which can be found in the next chapter. This theoretical overview have been structured into a number of different sections. The first part presents the concept and ideas concerning business models. After that we present theory about the difference between business models and business strategy. The following section introduces different definitions of business models. We then present the theory concerning the importance of business model innovation and signs for when to conduct it. The last section gives us an understanding to why business models are important for capturing value from technology.

4.1 Business Models Introduction

The concept of business models arose during the emergence of the internet (Chesbrough and Rosenbloom, 2002; Gobble, 2014). According to Mason and Spring (2011) this was due to the fact that firms needed to explain for investors how the new types of businesses emerging would generate money. Johnson et al (2008) claims that business models are applicable on all types of businesses and that all companies have business models, meaning that it is not exclusive to business born out of the internet age. They also state that great business models can reshape industries and drive immense growth.

4.2 The Concept of Business Models

Scholars researching the topic of business models are not in agreement of what a business model is. Many different definitions and concepts of it have arisen over time. Anderson et al. (2007) states that “The frequent use of the concept in combination with the many practical and theoretical definitions of the concept makes it difficult to create one coherent view of what it means, what is included in the concept and, what the purpose is of applying it”. Zott et al. (2011) claims that the literature has been developed mostly in silos, which has resulted in many definitions rather than one.

4.3 The Idea of Business Models

Even though, there are different definitions of business models most literature agrees on two parts of what business models explain. These are: 1) Business models explains how firms create value through sets of parts, mechanisms and strategies. 2) How firms capture value through parts, mechanisms and strategies (Chesbrough and Rosenbloom, 2002; Casadesus-Mansell and Ricart, 2010). Chesbrough et al. (2002, p.530) sees it as “the architecture of the revenue” and Teece (2010) argue “the essence of a business model is in defining the manner by which the enterprise delivers value to customers, entices customers to pay for value, and converts those payments to profit”.

4.4 Difference Between Business Models and Business Strategy

Alfred Chandler’s *Strategy and Structure* (1962) was the first systematic approach to show the importance of growth and change in the modern industrial corporations. He meant that in order to conduct a growth strategy the administration had to be imaginative in order to be able to be diversified. Ansloff (1965) developed Chandler’s ideas by applying the concepts on corporate strategy. Strategy was defined as having a conscious plan to align the firm with opportunities and threats posed by the environment. Andrews (1987) built on this idea and made a distinction between corporate strategy and business strategy, whereas the latter one he defined as “the product-market choice made by division or product line management in a diversified company”. This meant that a company only could have one overall corporate strategy, but several business strategies. What types of businesses a firm conducts at the moment will likely affect their direction in future businesses as well.

Casadesus-Mansell and Ricart (2010) states that all companies have business models, but it is not certain that they have a business strategy. They state that strategy should be seen as a set of plans for reconfiguration of the firms' business models. According to Zott et al. (2011), a big difference is the stronger focus on the value proposition and customer offering when speaking about business models, which is in contrast to business strategy.

4.5 Definition of Business Models

Business models are often described in literature as consisting of several generic components. This gives a good picture of the current state of a firm's business, but may lack in dynamism. According to Zott et al. (2011) some of the first attempts on conceptualizing business models, made in the context of e-business, begun by splitting the business up in three major parts. 1) Value, customer value and value proposition, 2) revenue and cost models and 3) the network architecture, consisting of logistics, distribution, exchange relationships etc.

Chesbrough and Rosenbloom (2002) came up with a framework for business models that was not limited to the e-business. It consisted of six parts: 1) *Value proposition* – the value created for users by the offering based on technology; 2) *Market segment* – identify the users to whom the technology is useful and for what purpose, and specify the revenue generation mechanism(s) for the firm; 3) *Value chain* – define the structure of the value chain within the firm required to create and distribute the offering, and determine the complementary assets needed to support the firm's position in this chain; 4) *Cost structure and profit potential* – estimate the cost structure and profit potential of producing the offering, given the value proposition and value chain structure chosen; 5) *Value network* – describe the position of the firm within the value network linking suppliers and customers, including identification of potential complementors and competitors; 6) *Competitive strategy* – formulate the competitive strategy by which the innovating firm will gain and hold advantage over rivals. These six items serves to collectively explain the need for capital to realize the business model and to serve as a guide for how to scale up the business.

Jonson et al. (2008) has a similar approach in defining what a business model consists of. They mean that firms needs to be aware of three components in order to understand their current business model and be able to reinvent it. These are: 1) *Customer value proposition* – the model helps customers perform a specific “job” that alternative offerings do not address;

2) *Profit formula* – the model generates value for your company through factors such as revenue model, cost structure, margins, and inventory turnover; and 3) *Key resources and processes* – The company has people, technology, products, facilities, equipment, and brand required to deliver the value proposition to your targeted customers. It also has the processes (training, manufacturing, service) to leverage those resources.

4.6 The Importance of Business Model Innovation

Chesbrough and Rosenbloom (2002) states that it is important for established companies to continue to develop their business models to remain successful. In the same manner Johnson et al. (2008) means that changes in a firm's business model may lead to success. This is a result of gaining new competitive advantages by innovating their current business model. Porter (1996) defines competitive advantage by saying: “strategic positioning means performing *different* activities from rivals or performing similar activities in *different* ways”.

Gobble (2014) means that the internet has enabled a whole new range of business models and that we will probably see even more experimental business models in the future. She continues to state that: “Now more than ever, it's not sufficient to create a great product; truly innovative companies have to think deeply about – and repeatedly rethink – what value they deliver and how they can capture a portion of that value for themselves”.

4.7 Signs to Conduct Business Model Innovation

Johnson et al. (2008) identifies three opportunities and two needs for firms to reinvent their business models. The opportunities to reinvent are: 1) *Needs of a group* – address needs of large groups who find existing solutions too expensive or complicated; 2) *Technology* – capitalize on new technology, or leverage existing technologies in new markets; and 3) *Job-to-be-done* – Bring a job-to-be-done focus where it does not exist, by fulfilling unmet customers needs. The needs to reinvent are: 1) *Disruptors* – to fend off low-end disruptors, and 2) *Shifts* – respond to shifts in competition.

4.8 Business Models Roles in Capturing Value from Innovation and Technologies

Chesbrough and Rosenbloom (2002) claims that the literature covering technology management agrees on the fact that companies have great difficulty managing innovations

that are new to the company, and where their previous knowledge around the topic is lacking. The literature does not, however, agree on the root of the difficulties. Some argue that it lies in the characteristics of the technology itself, others claim that it is due to lacking management processes to run the new technology. There are also people arguing that the difficulties stems from how the companies access surrounding resources. However, it is possible to manage new technologies if you invest in integrative capabilities (Henderson, 1994), ambidextrous internal processes (Tushman and O'Reilly, 1997) or complementary assets (Tripsas, 1997). There is also a group of scholars that believes that disruptive technologies should be handled outside of the main business, without the allocation of internal resources (Christensen, 1997).

In order to bridge the gap of these theories, Chesbrough and Rosenbloom (2002) means that the business model should be seen as a framework that takes technological characteristics and potentials as input, and converts them through customers and markets into economic output. Firms often fail to manage effectively when new technological developments are introduced. Chesbrough and Rosenbloom (2002) explains this as a result from failing to perceive and enact a new business model in alignment with the new technologies. Chesbrough and Rosenbloom (2002) means that firms need to understand their current business model to be able to commercialize the new technologies and be able to change the business model in a fitting way to the new developments.

Zott et al. (2011) mean that technological innovations generate new types of business models. He continues to state that technologies are enablers of business models and that the business model complements the new technology. Chesbrough and Rosenbloom (2002) claim that firms take new technology to markets by reforming their business models, which could happen either in an explicitly considered way or implicitly as a result of innovations. The value of the technology remains latent until it is commercialized through a change in the business model. How much the current business model needs to change depends on how different the innovation is from the current way of doing business. In some cases the new business model could already be familiar to the company, even though it is new. In other cases the innovation calls for a complete revamp of the whole business model.

Companies need to be able to find the right “architecture of the revenue” in order to capture value from technologies, according to Rosenbloom and Spencer (1996). If the

companies fail to do so, they will not be able to capture all the value that comes with innovations. In the end this may result in reluctance in engaging in creation of new technologies. Chesbrough and Rosenbloom (2002) are arguing in the same way and means that different types of business models capture a different amount of value.

Bower and Christensen (1995) points out that established firms might struggle when new competitors introduces new technology that disrupt the industry. This is due to the reason that they fail to innovate their business models in accordance with the new technology. In many cases the companies are aware of the new technology, but purposely rejects it, since the technology demands a change in business model. Often these technologies are not radically new or difficult for the established company to implement. However there are often two characteristics that the new technology has. First, it presents a different package of performance attributes, which in the beginning are not valued by the existing customers. Secondly, the performance attributes of the technology improve in a rapid rate, which leads to increased valuation from the customers. The new technology will then compete with the existing market, and at this point the mainstream customers wants to access the new technology. In these cases, if the established company has not done any investments in these technologies, the newcomers will overtake the established companies. Reasons for the established companies to not invest could be, existing cost structures and revenue/sales situation that provides little incentive to invest in the new offering. The company believes that their current offering is more profitable due to higher margins, better volumes and the believe that the demand for the new offering is low. This means that established companies seldom see disruptive technologies as a viable market opportunity.

4.9 The Research Model

The research model will be used as our analytical tool when we approach the empirical data in order to answer our research questions. It has been developed with the insights from our pre-study, background research and theory in mind.

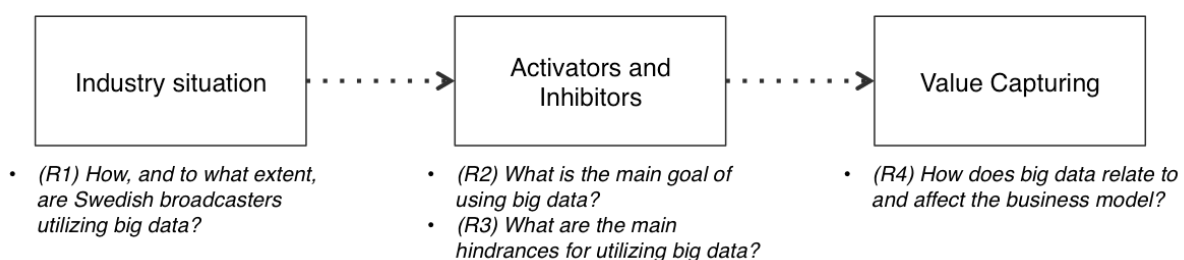


Figure 1: The research model

Our model consists of three parts: *Industry situation*, *Activators and Inhibitors* and *Value Capturing*. Where the different parts serve to answer the research questions that we have. The first part: *Industry situation* serves to answer our first research question (R1) *How, and to what extent, are Swedish broadcasters utilizing big data?* In our analysis we will then use this part to describe the current broadcaster landscape, in relation to big data, and be attentive to how the companies business models have affected the situation. The second part: *Activators and Inhibitors*, serves to explain how the different opportunities and inhibitors of big data interrelate with the stage of where the players are in their implementation. Thereby it will help us answer our second and third research question: (R2) *What is the main goal of using big data?* and (R3) *What are the main hindrances for utilizing big data?* The third part: *Value capturing* will be used to analyze how the factors identified interact with the companies' business models as a whole, and thereby answer our last research question: (R4) *How does big data relate to and affect the business model?* With this research model as a foundation for our analysis we intend to explain how the broadcasting industry interacts with big data and how it could affect their way of doing business.

5. Methodology of Main Study

In this section we aim to outline and discuss the methodological choices made in collecting and analyzing our data. We begin by discussing the selection, collection and analysis of the collected data. Lastly we finish up the section by discussing and reflecting on the quality of the conducted research.

5.1 Research Design

The aim of this thesis is to contribute to existing business model-research with insights on how the Swedish broadcast industry are acting in a shift toward becoming more data-driven as organizations. It also aims to reflect how this transition affects their business models. There is a research gap in existing literature regarding the interconnection between big data and business models. The relationship between these two concepts has not yet been fully covered. Hence, the goal of this thesis is to contribute to bridging this knowledge gap.

In order to successfully conduct an explorative study, such as this, we have chosen to use a qualitative rather than quantitative research approach. This is in accordance with Merriam's

(1994) recommendations. Malhotra (2004) state that a qualitative approach is recommended when studying behavior and processes within organizations. In order to understand and be able to draw conclusions from the researched area we needed contextual descriptions and insights into human behavior, and as Guba and Lincoln (1994) shows a qualitative approach is more suitable than a quantitative in these cases. Moreover, there is little existing literature covering this specific research area. Since a quantitative method needs to have specific limitations to drive the investigation such a method did not match our research goal (Bryman and Bell, 2007). Collectively, this led us to use an inductive approach in order to generate theories rather than testing existing theories by using a deductive approach.

To best perform our qualitative study we chose a case study methodology. According to Eisenhardt (1989) this is a suitable method when trying to provide descriptions of different events and situations. He also claims that it is a recommended method when handling a relatively new topic (Eisenhardt, 1989) such as big data. Yin (2014) lists three parameters for when a qualitative case study approach is suitable. The parameters are as follows: 1) “*how*” and “*why*” questions should be posed, 2) the topic should be contemporary and within a real-life context, and 3) the investigators should have little control over behavioral events. In this case all these parameters are fulfilled which strengthen our choice of method. However, Yin (2014) also concludes that the qualitative case method also has been criticized and said to be too specific and not scientifically generalizable. Other scholars have disputed such a standpoint. For example, Dubois and Gadde (2002) state that learning’s from a specific case should be seen as a strength rather than a weakness. Furthermore, Merriam (1994) argue that in-depth case studies provide a good understanding of the interaction between a phenomenon and its context. Hence, we do not see the case study methodology employed as a limitation but rather as a necessary tool to generate relevant insights and gain qualitative knowledge.

We chose to conduct in-depth interviews with industry professionals as a basis for our cases. The output from these interviews was then considered our primary source of data. According to Malhotra (2004), interviewing professionals is a preferable method when the goal is to describe and understand complicated behaviors, which is the case in this thesis. We also used methodological triangulation, as recommended by Yin (2014), in order to strengthen our data and subsequent analysis. In this case, triangulating meant using theory, big data-literature and corporate documents in addition to the empirical findings obtained through performed in-

depth interviews with industry professionals. According to Bryman and Bell (2007) this type of triangulation strengthens the validity and reliability the performed study.

5.2 Case Selection

5.2.1 Selection of Broadcaster Cases

As the aim of this study was to explore, describe and analyze how Swedish broadcasters work with big data, and as the industry consists of a limited number of players, we needed a broad array of the players to partake and form the basis for our cases. In order to gain access and learn more about the players in relation to our topic, we carried out pre-study interviews with consultants and industry gurus³. As these people had great insight into the industry we saw their recommendations as a good starting point for sampling out cases, in accordance with recommendations by Bryman and Bell (2007). We then used the snowball sampling method to find new cases, following the recommendations made by industry professionals.

When selecting the cases we used the replication logic, as presented by Yin (2014), or what Eisenhardt (1989) calls the logic of theoretical sampling. The reasoning of this method is to treat each chosen case by itself as a study rather than a sample in one study (Yin, 2014). Eisenhardt (1989) describes some logics for choosing each particular case. The cases should be chosen in order to predict similar (lateral replication) or contrasting results but for predictable reasons (theoretical replication) (Eisenhardt, 1989). As suggested by Bryman and Bell (2007), it is a good method in qualitative research to use snowball sampling together with the replication logic to increase the quality of the research.

When choosing the cases we focused on the broadcasting industry since Manyika et al. (2011) states that the information industry is in the top quintile of the industries to benefit from big data. They are in a good position concerning talent, IT intensity and data availability. However they do not have, in general, a data-driven mind-set, but during recent years international competitors, born out of the digital age, have gained great success in being more data-driven, such as Netflix. Because of this we found the broadcast industry to be interesting as a focal point for our research.

³ See chapter 2 for more information regarding the pre-study

Although a publicly funded company, we have chosen to include SVT as one of our case studies for this thesis. This decision was made as one of our objectives is to map out where different actors on the Swedish broadcasting industry stand in relation to data analytics and as SVT unquestionably is one of the major forces in this industry.

The cases were then chosen with the criteria that they 1) needed to act in the broadcast industry – meaning that they have a business model based on traditional broadcasting, 2) have a digital presence in terms of VOD solutions, 3) be in different digital maturity stages and 4) demonstrate different characteristics in size and how their business models are executed. Due to these factors we believe that the study has an extensive coverage of the Swedish broadcasting industry and will also be generalizable on an international level.

Company	Turnover (MSEK)	Employees	No of channels	Revenue Source	VOD Launch
SVT	4 595,4 (2014)	2 215	Total: 6	Public funding	SVT Play, 2006
TV4*	4 303,9 (2013)	410	Total: 9	Advertisement/Mini-Pay	TV4 Play, 2009
C More*	2 288,5 (2013)	57	Total: 15	Premium-Subscription	Filmnet, 2012 C More Play, 2012
MTG* (TV-operations only)	2 854,9 (2013)	147	Total: 20 6 (Mini-Pay) 14 (Premium-Subscription)	Advertisement/Mini-Pay/ Premium-Subscription	TV3 Play and others (2006) Viaplay, 2007 (Viasat OnDemand)
SBS Discovery	1 430,7 (2013)	151	Total: 11	Advertisement/Mini-Pay	Kanal 5 Play och andra,,2011

Table 2: List of selected broadcaster cases and some key information

*Both TV4 and C More a part of Bonnier AB, but work as individual companies in big data questions. MTG cover big data for both TV3 and Viasat. Due to that we have separated the cases in the way shown.

5.2.2 Selection of Interviewees

When selecting the interviewees we first of all followed recommendation from our pre-study representatives. As they are a part of the industry, but in another section of the value-chain, they had good connections with the right people at the case companies. They directed us either to top-managers who then redirected us to people in charge of big data development or we reached the managers in charge directly. During our data-collection we realized that the big data field was relatively new to the companies, and that few other people within the organizations were knowledgeable about it. Hence we came to the conclusion that it would suffice to only talk to the people in charge of big data development to gain a good understanding of our research question. Even though, the interviewees titles were different

they all had similar responsibilities concerning big data, namely develop and align their organizations to a more data-driven structure.

Name	Position, Company	Location	Duration
Robert Kviby	Country Manager Sweden and acting SVOD-manager, C More	Interviewee's office, C More	1,5 hour
Henrik Forsberg	Business Intelligence Manager, Modern Times Group (MTG)	Interviewee's office, MTG	2 hours
Anders Sahlee	Research & Development Manager at SBS Discovery Media	Interviewee's office, SBS Discovery Media	1 hour
Jakob Rahm	Team leader development team, SVT	Interviewee's office, SVT	1 hour
Lisa Ring	Web developer, SVT	Interviewee's office, SVT	1 hour
Julia Lindberg	Web developer, SVT	Interviewee's office, SVT	1 hour
Per Åström	Chief Innovation Officer, TV4-Group	Interviewee's office, TV4-Group	1 hour

Table 3. List of interviewees

5.3 Data Collection Process

5.3.1 In-depth Interviews

From the interviews performed in the pre-study, we devised a set of questions that aimed to capture the essence of our research questions. We also based the questions on theory that we beforehand taught were relevant. The interviews were then done in a semi-structured manner, where we originated from our set of questions, but then let the interviewee expand on relevant topics that were touched upon as the interview proceeded. A semi-structured way of conducting interviews is recommended by Bryman and Bell (2007) when doing qualitative research. We found this method preferable in order to make the cases comparable. However, we continually revised our set of questions during the process to increase the relevance.

The interviews were performed face-to-face at the interviewees' choice of location. All wanted them to be performed at their company. Both of us partook in the meetings, which also is recommended by Eisenhardt (1989), as two observations are better than one and it made it possible for us to divide into different roles. One led the interview with the guidance of our set of questions and the other took a more reflective role. The duration of the interviews were between 60 to 120 minutes, and were held in Swedish. The interviews were also recorded in order to capture expressions and comments that otherwise could have been

missed. Additionally, it let us be more focused on the interview per se, which meant that we could come up with well-taught follow-up questions and take note of gestures. This is a good approach as suggested by Bryman and Bell (2007). After each interview we transcribed the interview in order to have the collected data more accessible and analyzable.

5.3.2 Company Documents

During the process we took cognizance of several company documents concerning the topic. Some were handed to us physically and were of public nature, which allowed us to dwell deeper into these. However, we were also shown confidential documents, which were later on kept by the company. These documents strengthened the understanding process, and also confirmed ideas that we have had. According to Yin (2014), the information that we received in this way also serves as a good source as it verifies findings.

5.4 Analysis of Data

The approach of grounded theory was conducted when analyzing the information that we had gathered, as Bryman and Bell (2007) recommends for qualitative research. This meant that we started with the observations and then identified similarities that we could build our theory base around. In order to find applicable theory we started by doing case-by-case analysis and afterwards we did cross-case analysis. The reason for this was to first identify interesting phenomena within each case, and then to see if these phenomena were reappearing throughout our case-pool. This way of doing analysis in qualitative research is supported by Eisenhardt (1989). During the whole process we also used open coding practice (Bryman and Bell, 2007), which meant that we identified *similar wording* in our database. Afterward, the results were organized into *concepts* and *categories* that we used to form our theory around. We also used a triangulation technique by cross-matching the findings from our interviews with other sources such as the documents that we were provided with.

5.5 Research Quality

When evaluating the quality of this research we have followed the two criteria that Guba and Lincoln (1985) presents, which are trustworthiness and authenticity. Trustworthiness serves to measure the credibility, transferability, dependability and conformability. The point of these is to “fairly represent different viewpoints among members of the social setting” and if the

research helps the members to understand the social setting (Bryman and Bell, 2007). What authenticity serves to explain is if the research done has stimulated the members to change their statements to align with the research (Bryman and Bell, 2007).

5.5.1 Credibility

The purpose of this criterion is to evaluate whether the findings are believable (Bryman and Bell, 2007) and determine if the research gives an accurate picture (Yin, 2014). In order to fulfill this we used different methods, since it is a problem with case studies that it could fail to portray the whole picture due to the limited number of participants. In order to prevent this we firstly encouraged the participants to speak freely around the topics and we let them expand on topics that they felt were important. This made it possible for the interviewees to give their view of their topic and bring up information that earlier were not considered. Secondly, we transcribed all interviews so that the information would not be tampered with due to faults in recalling. We also let the participants review their cases, in order to verify it (Merriam, 1994). Thirdly, our open-coding approach and cross-case analysis made it possible to get a broader picture, rather than just grounding our findings on one occurrence. Fourthly, we triangulated the findings by using different sources (Guba and Lincoln, 1985). All these methods employed enhance the credibility of our research.

5.5.2 Transferability

Transferability serves to answer whether the results of this study are applicable in other contexts (Bryman and Bell, 2007). As a case study do not have the possibility of being “statistically generalizable”, due to the nature of the method, it can provide “analytical generalizability” whereas the results can be generalized to the theory (Yin, 2014). In order to make the research transferable we tried to provide a “thick description” and give as much information as possible concerning each case (Lincoln and Guba, 1985). Additionally, we used a multi-case method with the replication logic to further increase the transferability, as recommended by Yin (2014).

5.5.3 Dependability

This criterion evaluates whether the research process is replicable by other researchers, and whether the same results would occur (Yin, 2014). To make this possible we have given a detailed description of our method approaching the research topic, and we have included our set of questions in the appendix. During the whole process we have also tried to be as structured as possible by keeping all our notes, versions, transcriptions and accounted for all decisions and changes we have made, in order to verify and review. Bryman and Bell (2007) recommends this as a way of enhancing the dependability.

5.5.4 Conformability

This parameter serves to assure that the research is as objective as possible (Bryman and Bell, 2007). If personal values are incorporated in the study it is hard for peers to identify these, therefore it is important to try to prevent these. In order to enhance the objectivity we have employed several methods. Firstly, we kept all documentation, in order to make it possible for us to go back and verify if we had a biased reflection on something. Secondly, we triangulated the data by having multiple sources, which we could use to crosscheck our assumptions and conclusions. Thirdly, we connect our findings to literature and relevant theory. Fourthly, we had regular contact with industry experts and academics to discuss our findings.

5.5.5 Authenticity

Our research covered the broadcast industry and we managed to get in contact with all actors in the Swedish market, who all could present their view on the topic. This meant that we got different viewpoints from each of the companies, reducing the likeliness of the interviewees aligning or changing their versions to fit our research. We found the quality of the interviews to be on the same level in respect to openness and transmitting a real picture of their situation. We thereby conclude that the authenticity is high.

Tests	Case Study Tactic	Phase	Research actions
Credibility	Triangulation approach	Data collection	Use of different sources: interviews, company documents, and academic sources.
	Secure authenticity	Data collection	Interview data taped in real time and transcribed shortly after.
	Encouraged openness during interviews	Data collection	Before each interview we encouraged the participants to speak freely and expand on topics.
	Have key participants review draft case study report	Composition	All cases were sent out to participants and feedback was taken in consideration before publication.
	Open-coding and cross-case matching	Data analysis	Open-coding and cross-case analysis were performed to secure the whole picture.
Transferability	Multi-case method with replication logic	Research design	Each case treated as their own study and not part of a bigger sample.
	Thick description	Research design	Detailed description of how we conducted our research.
Dependability	Utilized material included	Research design	Detailed description of how we conducted our research and inclusion of interview questions in the appendix.
	Structured research approach	Research design	During the process all material produced were kept and changes accounted for.
Conformability	Rigorous documentation	Data analysis	All documentation were kept to enable verification and review.
	Triangulation approach	Data analysis	Different sources used in order to validate assumptions and conclusions
	Theory-linkage	Data analysis	Findings were verified with theory and relevant literature.
	Expert opinions	Data analysis	During the process regular contact with industry experts and academics were maintained.

Table 3: Research quality

6. Empirical Findings

6.1 Case: MTG

“Big Data is like teenage sex. Everyone talks about it, nobody really knows how to do it but everyone thinks everyone else is doing it, so everyone claims they’re doing it”

– As reflected by Henrik Forsberg (2015), quote originally attributed to prof. Dan Ariely.

6.1.1 The Five Pillars of MTG’s Business Model

Mr. Henrik Forsberg is the group level Business Intelligence Manager at Modern Times Group. As such Mr. Forsberg is responsible for Business Intelligence and Analytics across all MTG’s geographical markets. According to Mr. Forsberg (2015), and relating to the business model perspective of this thesis, the business of Modern Times Group today stands on five different pillars. The first pillar is satellite distributed TV, or Pay-TV. This is where it all

started in 1987 when Kinnevik/MTG introduced the first commercial TV-channel in Sweden, TV3, and surpassed the government ban through satellite distribution. Satellite TV still remains an integral part of MTG's business and the business model is quite simple according to Mr. Forsberg: "We sell pay-TV subscriptions, content packages and hardware in the form of set top boxes, both through third party retailers and our own sales channels". The second pillar is free-TV, or ad-funded television. These are the same channels [TV3, TV6, TV8, TV10 being the Swedish examples] being delivered to consumers via their pay-tv subscriptions, but mainly funded by advertisers who buy advertising slots and also available through the free-TV offering. The third pillar at MTG is MTGx. Mr. Forsberg explains: "MTGx is the 'digital accelerator' of MTG. It's a new organization and a way to gather all digital services including Viaplay, the free-TV play sites such as TV3 Play, and other digital ventures under one roof". Mr. Forsberg concludes that: "Digital is dependent on large volumes. Compared to linear TV the revenue from ad sales online are small but growing. Roughly one third of our revenues comes from Pay-TV, another third from the free-TV business and digital ventures only constitutes a smaller portion of the remaining third that is built up of all other operations". The fourth pillar Mr. Forsberg mentions is the studio business, a division that recently got its name changed to Nice Entertainment Group. The studio arm consists of 25-30 production companies that target all media companies globally and hence are not limited to producing only to MTG. The fifth and final pillar in MTG's business according to Mr. Forsberg is MTG Radio. "Not very lucrative. It's expensive and the advertising offering is imprecise. I don't think there's one commercial radio-player in Sweden today making decent money". MTGx, Nice Entertainment [MTG Studios] and MTG Radio together accounted for 17% of total revenues according to MTG's 2014 annual report, but non of its earnings as the business area was not profitable.

6.1.2 Data Collection Historically at MTG

MTG has a heritage of working in silos to a great extent. This is something that has hurt the usage of group wide data collection and processing according to Mr. Forsberg: "The silo structure can go as far as us having competition between business units within MTG. Every employee will drive their own business area extremely hard. A lot of data is generated in the different business units, but historically there has been no technical ability to aggregate the data. This is off course sub-optimal in relation to leveraging big data. My task is to lift this up to the group-level and to find a way to work in a coordinated way across the company." Mr.

Forsberg dwells further on the need for MTG to develop their work practices in relation to gathering and analyzing data: “We need to improve how we work with data to a great extent. At the core MTG has always been a sales company. Now we need to transition from focusing on new sales into nurturing our existing customer relationships to a greater extent, and here data analytics plays an integral part. The digital transformation currently permeating our organization is new, and originates in changing user behaviors where users are abandoning scheduled TV in favor of watching online.”

Mr. Forsberg was brought on to MTG in 2013 and became responsible for bringing MTG’s fragmented data practices together to a coherent whole: “We started looking at this last summer [2014]. We got a query from the board asking how we were working with big data and what our view on the potential of it was, so we just had to get going. I spent six months just going over our current practices. Now we have established a group level initiative called MTG IQ. This is basically the taskforce in MTG as we try to leverage our big data capabilities and profit from them. We’re 5 employees and 10 consultants driving this, and we’re doing it at one hell of a pace!”

6.1.3 Developing Big Data Practices for the Future

Mr. Forsberg gives his view on what MTG need to do in order to be able to improve their business model and their current business practices based on big data analytics. “In order to be able to leverage big data you need to build it the right way. At Viaplay we have focused on data in, but haven’t gotten all the way to the actual analytics. This has, for example, rendered the Viaplay recommendation engine not being as dynamic as it could be. Within MTG IQ we have started building a data integration platform from scratch, with the experience and knowledge of our digital CIO [and co-founder of Avanza bank] Ronnie Bodinger”. Mr. Forsberg explain that now a vital part of MTG’s data sources feed into this common platform including user and payments data from Viaplay, billing data from Viasat, Google Analytics data, ratings from MMS, demographical market information from MTG subcontractors such as Bisnode and last but not least data from MTG’s satellite set top boxes recording every single keystroke on their subscribers TV-remote. All this data feed into MTG’s big data platform, in real time to the extent possible, enabling the data analytics capabilities of MTG’s BI-platform and the predicative model employed. “Our first priority with this data is to keep better track of our Viasat customers [satellite pay-TV]. We have launched a CRM [Customer

Relation Management] focused project on the Swedish market where we drive our analysis from the individual customer and upwards. We want to improve the overall customer experience in order to reduce churn, improve customer lifetime and customer profitability”. Mr. Forsberg exemplifies how customer retention can be improved by the use of big data: “By mining all the data we collect we can reduce customer churn. If we see in our data that a particular household isn’t utilizing the golf-package they are paying for as part of their Viasat subscription, we can call them up before they decide to drop out and propose a modification in their Viasat subscription by offering them a special deal. This way we can keep them on as a customer, reduce churn and increase customer lifetime”. Mr. Forsberg explains that this is a rather big change from how MTG have acted as a sales company historically, and marks a transition from selling as much as possible to every possible customer to focusing on nurturing the customer relationship and even accept a ‘down-sell’ in order to keep the customer on for a longer period. “Today we can predict churn probability very accurately through our data analytics, starting from the customer. So we’re moving towards a much more customer centric client relationship. This is a major transition comprising almost all of our internal processes that to a large extent is made possible through big data”, Mr. Forsberg sums up.

6.1.4 Big Data Effects on the Business Model

The way Henrik Forsberg sees it big data offer several opportunities in transforming how MTG does business in a first step, and thereafter having more profound effects on the employed business model. “If you think about it, it’s no surprise we’re trying to gather all the footprints our customers are leaving behind, trying to make some kind of analysis aiming to drive sales and customer loyalty”, Mr. Forsberg says.

One effect from big data on MTG’s business model is the way MTG’s production companies can act proactively towards potential customers thanks to the data gathered by MTG’s distribution arm, its pay TV operations Viasat: “What we’re building through our platform for leveraging data is also a opportunity for our production companies to produce the right stuff at the right time. Since we have access to the ratings of our competitors, we are able to see when ‘Fångarna på Fortet’ [popular Swedish TV-show aired on TV4] lags behind. We roughly know their production costs and how much revenue they generate per episode on such a show and will know when the management team at Tegeluddsvägen [Head quarters of

TV4] will sit down and conclude that the show isn't profitable any longer. Then, it's pretty good if we are able to come knocking on their door a few weeks before this offering them a new format. And this isn't really that hard considering all the data we have available at our feet".

Mr. Forsberg identifies several opportunities in relation to big data and mentions two main legs in big data. The first leg is becoming more relevant in customer communication through big data analytics. "In-product communication is something we will be able to leverage, having better recommendations and personalizing the messages we send out" (Forsberg, 2015). The other leg Mr. Forsberg mentions is the development of ad-solutions that offer more targeted and dynamic advertising, making MTG's offering toward advertisers more precise and relevant.

"Data analytics, the technological development and the changing user behaviors we're seeing right now is profoundly going to change the business models used in this industry. I think that in the future, rights will be sold globally to a greater extent and the whole idea of having a DVD-window after the initial release of a movie in theaters for example will disappear in due time. But unfortunately I can't go on record in more detail than that concerning the business model development here at MTG, as it is pretty crucial to our business", Mr. Forsberg explains.

6.1.5 Organizational Considerations in Relation to Big Data

According to Henrik Forsberg, implementing data analytics into the business and all different processes takes time and buy-in from the employees. "We're running in all different kind of possible directions right now, and I can tell you that it's pretty hard to get the organization on board. It's not only about having a plan, a direction and a will to do something, it's as much about getting people to believe in what we're doing and to follow. All the technological abilities we need to leverage big data are in place, now we need to get our people to actually use it and make it part of their daily work", Mr. Forsberg concludes.

6.2 Case: SBS Discovery

“We are tracking what people watch, conversion rates, how they move around the site but not much more than that”

– Anders Sahlee, Research & Development Manager at SBS Discovery Media (2015)

In April 2013 the global media group Discovery Communications with headquarters in the U.S. bought SBS Nordic from German media group ProSiebenSat.1 Media and SBS Discovery Media was formed. Anders Sahlee came from SBS Swedish operations and is now responsible for R&D at SBS Discovery Media in Sweden. “My main work today evolves around how we are going to make money in the future, and how we are going to leverage being part of the global Discovery group. I currently also work a lot with how we are going to measure viewership in the future together with MMS. This is an important question in the industry at this time, as an increasing fraction of viewers are moving online and the need for a standardized and reliable way to measure total viewership regardless of distribution form is needed”, Mr. Sahlee says. According to Anders Sahlee (2015), Sweden is in the forefront of this development and could well be one of the first countries to launch standardized measurements of viewership on traditional distribution channels combined with that from online viewing through MMS.

6.2.1 Data at SBS Discovery

According to Mr. Sahlee the acquisition by Discovery has put the use of big data analytics higher up on the agenda, especially through the group wide initiative to develop a common OTT-platform for streaming services across geographical markets called ‘D Play’. D Play is scheduled to launch sometime during 2015. “The joint OTT-service D Play will constitute a good customer base and a solid foundation for investing in big data analytics”, Mr. Sahlee says. Although the acquisition has spurred group wide big data discussions, former SBS has been a driving force in this development according to Mr. Sahlee: “Generally speaking, we had a greater focus on developing OTT-services and establishing presence online at SBS Sweden whereas Discovery still focused on linear TV. Hence, we in Sweden have been taking the lead on developing the D Play-platform and driving this whole development. The actual platform development is taking place in London, but we are lead on project management”.

Although SBS Discovery has functioned as a driving force behind the implementation and use of data gathering and analytics in the Discovery group through the development of the D play platform, this is not a very prioritized area at SBS Discovery today according to Mr. Sahlee. “We’re not discussing the concept of big data that much, but it’s something we have to relate ourselves to. We have a good basis for gathering and analyzing data through the existing SBS Discovery play service [Kanal 5, Kanal 9 and Kanal 11 Play] and our customer base there”, Mr. Sahlee explains and continues: “Today we mainly work with very basic data regarding how our premium users are interacting with our play service. We are tracking what people watch, conversion rates, how they move around on the site but not much more than that. Since our paying premium users are registered and log on to our service it is much easier to track them than users who access our open and ad-funded sites, where we have to rely on cookies and such”.

Mr. Sahlee argues that the first of two major possibilities big data analytics bring to the table is being able to work dynamically with user recommendations on the play service, to get users to stay on the site longer, generate ‘eyeballs’ and ultimately higher ad revenues. The second possibility Anders Sahlee mentions is the development of new business models around deepened customer knowledge, for example through more targeted advertising where SBS Discovery will be able to transition their ad-offering from targeting ‘everyone’ watching a particular show to much more precise customer segmentation based on more complex data such as interests and previous browsing behavior.

6.2.2 Organization at SBS Discovery

According to Mr. Sahlee the organization for data analytics and analysis is very de-centralized and locally dispersed within the Discovery group today: “We have two data analysts working for us today and another 10 people in our research department. This organization stems from the traditional business model where our analysis has been dependent on more traditional data collection, through MMS and focus groups for example. In the long term we will see an increased need for different specialists such as statisticians”.

6.2.3 Obstacles and Opportunities in Relation to Big Data at SBS Discovery

One of the biggest opportunities in relation to data analytics at SBS Discovery according to Mr. Sahlee is getting to know the user. “If we can get to know the people using our service better we can get the users we already have to stay at our site longer, and to upsell them to more expensive packages. If we are able to see what got them interested in a subscription to our service and what triggered the actual purchase, and how this relates to the content we’re offering then we can improve our site to better target potential customers”. Mr. Sahlee argues that the analysis made to a large extent will be the same as the ones made today, but on a more detailed and individual level. “We already have minute-by-minute ratings and can follow how our shows rank very precisely on linear TV. The same analysis will be made in the future for streamed content, and the questions asked will fundamentally be the same, the difference is that the analysis will be made on an individual level instead of group level where all viewers are ‘lumped together’ in rather blunt segments”. In relation to the business model, Mr. Sahlee sees a great possibility in offering more targeted ads: “In the long term we will offer more dynamic ad solutions where different users are faced with different advertising based on who they are and earlier behavior. In the short term the greatest possibilities relating to big data relates to knowing the users better and reducing churn”.

6.3 Case: SVT

“We are just starting to look in to this area of user generated data and how we can use it to improve our service”

– Jakob Rahm, Web Developer/Team Leader at SVT (2015)

SVT, Sveriges Television, is Sweden’s public service television and is financed through a licensing fee to be paid by every Swedish household who owns a TV-receiver. SVT shares this licensing fee with SR, Sveriges Radio (Swedish public service radio), and Utbildningsradion, UR. This set-up constitutes the base for independent public service programming and is meant as a guarantee that programming and operations are conducted independently of political and commercial interests. During 2013, SVT, SR and UR split funds totaling 7.129 billion SEK as decided by parliament. Of these, SVT received 57,7 percent, or 4.112 billion SEK (Radiotjänst, 2015). Due to this set-up, SVT’s operations are not dependent on a particular business model but rather on continuously receiving funds through a functioning licensing system.

6.3.1 Organizational Dynamics at SVT

SVT, Sweden's public service television, has long been in the forefront in terms of digital development among Swedish broadcasters and was the first Swedish media house to launch a full scale OTT-service called SVT Play in 2006. Jakob Rahm is one of four web developers at SVT Play and when asked about the status of big data at SVT he responds: "We are just starting to look in to the area of user generated data and how we can use it to improve our service. Today we work mainly with simple A/B-testing on SVT Play, and this is something we started with no more than two months ago" (Rahm, 2015). Mr. Rahm has been with SVT since October 2009 and as a part of the team working with SVT Play he sorts under the division called SVTi, or SVT Interactive. SVT is divided into three divisions called 'SVTi', 'General TV' and 'News'. "SVTi handles the development of our services on all interactive platforms. Content production is done separately regardless of whether it is to be broadcasted linearly or if it's a web only production. I would say its pretty closed silos between content production and us developers" Mr. Rahm describes the organizational dynamics. According to Mr. Rahm and his co-web developers at SVT Play, Lisa Ring and Julia Lindberg, the cooperation between the digital side and the content side of SVT is not as close as they would perhaps want it to be. "There could be a better exchange of insights between us at the digital side and the content side at SVT. We at SVTi are situated stand-alone in another part of the building so there's not really much close interaction in-between divisions", Mrs. Ring concludes.

6.3.2 A Shift in Strategic Focus

According to Mr. Rahm, Mrs. Ring and Mrs. Lindberg (2015) there is a considerable focus at SVT today on online operations, reaching people who do not watch linear TV and making public service content available on all platforms. "There's a great focus from the management team on digital operations at SVT. Resources are continuously moved from linear TV to our interactive platforms and today SVTi has the same organizational status as the two other divisions [General TV and News], although we are clearly much fewer employees at SVTi [100 to about 1000 respectively on the two other divisions].

6.3.3 Data Analytics at SVT Today

According to Mr. Rahm big data is mainly to be classified as a buzzword at SVT: “We’re not using that word in our day to day operations, I mean what’s the actual definition of big data? When is it big enough? No one knows so I think it’s more of a buzzword”, he explains. Data analytics is in the start-up phase at SVT and is just recently being integrated more into day-to-day operations at SVT Play. “We have this algorithm that for example calculates the ‘most popular list’ that you see on the start page of SVT Play when you enter the site. The algorithm weights the number of share in social media with the number of started streams to create the list, but it doesn’t take into account the total viewing time of a program, it’s just the number of clicks” Mrs. Lindberg explains and continues: “We’re also starting to work with rather basic A/B-testing where we’re for example are tracking how different headlines is affecting the number of started streams. But we’re still in the early stages of this, and have only been doing so for about two months”. In the same way, SVT is testing how different icons on the site is drives streaming starts and clicks. But Mr. Rahm argue that as a public service company, SVT does not have the same incentives as commercial players to maximize time spent on their site and the number of started streams as funding, for example, is independent of ratings and number views: “We have a responsibility to highlight the breadth and the width of our offering, and to show people what they might not initially think they would be interested in, and here’s a major difference between us and commercial broadcasters”. At the same time, Mr. Rahm admits that data analytics could play an important part in highlighting the breadth and width of SVT’s offering: “if we have better knowledge of what particular users have been viewing, we off course have better possibilities to highlight other types of material to them”, he concludes.

6.3.4 Obstacles and Opportunities in Relation to Big Data at SVT

SVT is carefully following what other actors and players on the OTT-market are doing in relation to data analytics but do not have the possibility or the need to match it all. “We’re looking at what for example Netflix and Viaplay are doing. For example how they’re working in relation to recommendations and highlighting related content based on past viewing behavior. But we have two major hindrances to doing the same thing. First of all, we do not have a log in function as of today, meaning it’s harder to track users. Secondly, we do not have the resources needed to build advanced algorithms following user behavior across the site and making recommendations based on these insights. As a public service company I also

think we're generally more careful in relation to storing user data, we do not want to breach any privacy agreements", Mr. Rahm concludes.

The way Mr. Rahm and his colleagues at the developing team at SVT Play sees it, the main opportunities SVT has in relation to big data is developing a better service that is able to provide the users with a overall better experience. "We need to maintain the breadth of our offering, that is part of our mission, but at the same time we have to make the service more personalized in order to increase relevance. Being relevant is absolutely necessary also in order to be able to introduce users to other types of content available on SVT Play" Mr. Rahm and colleagues conclude.

6.4 Case: C More

"If you build big data in to narrow compartments and in closed silos, it soon becomes insufficient bordering the irrelevant"

– Robert Kviby, Country Manager Sweden and Acting SVOD-manager at C More (2015)

6.4.1 Sharing is Caring

"Econest is a data company within the music industry, that Spotify bought for 100 million USD. They're a music company based on recommendations, taste profiles and similarity queries. They have around 300 different clients that all use their open API, and send in their data about how for example Spotify's users are listening to Econest who compiles it all. Econest's data becomes extremely reliable as it is compiled from so many different data sources and as the API is open anyone can access the data. Econest tracks numerous different parameters such as skip rates, repeat rates etcetera. Through this they are able to predict how well a song will perform based for example on what users that can be classified as 'trend setters' are listening to at the moment", Robert Kviby (2015), Country Manager Sweden and acting SVOD-manager, gives this example as a way to illustrate how he would like the TV-industry to work when collecting data – sharing the data instead of viewing it as a proprietary asset that cannot be shared with others if it going to be possible to turn it into a competitive advantage. "Econest has a true ecosystem, unlike the ecosystems media group claim to be building when in fact they lack the right number of sources for it to be a real ecosystem", Mr. Kviby concludes and continues: "There's a diametrical difference between how the music

industry and the TV-industry have acted historically in relation to data. In the TV-industry data has primarily been limited to ratings and functioning as a currency to be able to sell ads – almost as a “necessary evil”. Whereas in the music industry it has been used in order to create a better product, with its origin in the 50’s when telephone surveys started to be conducted by radio channels every week to map out listener preferences in order to create a better product”. Mr. Kviby has a completely different philosophy on how to approach big data than many other players in the Swedish TV-industry. He argues that Netflix’s approach to data, often cited as best practice, is in fact insufficient, as it only comprises data from the Netflix universe and he would rather see the TV-industry choose another direction where data is shared. “I’d much rather have a recommendation engine for C More where us, Viaplay, Netflix, Comhem, Telia and others together build the same data. You sacrifice some kind of uniqueness but in return you get unparalleled data and a hell of a good product!”.

6.4.2 A Possible Transition in the TV-industry

Mr. Kviby sees a possible disruptive force in Google’s entry on the market through the launch of Android TV that has been released open source, in line with Google’s overall strategy, and hopes to see a shift in how players act. “I want us to release, not all but a majority of what we build open source to be able to work together with for example Android TV and help build much better services, because in my mind streaming still isn’t good enough”, Mr. Kviby (2015) says. “There’s a conception in our industry that big data is all about capturing user data which you then should capitalize and profit on by selling advertisements, but for me that’s the wrong focus”, Mr. Kviby explains. Instead he argues for using shared data in order to improve the products beyond making relevant recommendations on what to view next, for example to refine acquisitions of films and series by analyzing past viewing behaviors etcetera.

6.4.3 Big Data at C More

According to Mr. Kviby, big data is not really a word being used by the employees in his organization. Instead there is a focus on more basic user data that is being compiled and analyzed. “We’re looking at what content is being consumed, and we’re tracking data from the moment a person signs up for our service”, Mr. Kviby explains. He means that this, to a large extent, is a conversion game based on binary and not sophisticated enough data relating

to consumption patterns. “The more sophisticated big data usage is something we’re discussing and know that we have to do, but we’re not doing it today”. The greatest possibility in relation to big data, the way Mr. Kviby sees it, is being able to offer a customized and personalized site offering the right content to the rights users without them noticing it: “We shouldn’t be doing what Netflix does – telling you that they think you would like movie X, based on that you watched movie Y. By doing so you risk alienating your users by giving them irrelevant recommendations, it’s like buying your girlfriend ugly clothing – its not a good thing for the relationship. Instead we should just be showing different movies for different users, for example under the banner ‘new movies on C More’. The greatest success in relation to data would be to never have the users get irrelevant material showed up their face on our site”.

Mr. Kviby explains that in order to be able to leverage big data you have to follow several steps. Firstly, you need to build the right technical platform⁴ to be able to gather and analyze large data sets and secondly, you need to know what data to look at and how to get hold of it. When this is done you need to integrate data into all of the processes in order to become a truly data driven company and allowing the product being governed by the data and what you see in it. “To a large extent it’s a technological issue. Today we’re using the recommendation engine Jinni that for example scans social media for keywords used in relation to a certain movie title, and based on this is able to recommend other titles to our users” Mr. Kviby explains. But using a third party supplier for these kind of services is not unproblematic: “Its much easier to buy this service from someone who has specialized on doing exactly that. But as a business owner I do not really like the idea because they have our data and not us. But then again – doing it by yourself means having the problem of having a too small universe to collect data from”

6.4.4 C More as Part of Bonnier

Mr. Kviby sees an opportunity for Bonnier to build a network of data collection sources that can be compiled into a large enough data set that then can generate valuable insights. “We the central unit called Bonnier Insights that is trying to do this centrally but its still in its infancy. To be able to leverage this across different media types and data sources we need to develop a

⁴ C More is currently working on implementing a common Bonnier OTT-platform to be used by all companies within the business area Bonnier Broadcasting (TV4-Group, C More, MTV and Nyhetsbolaget)

taxonomy for what we're gathering, what parameters are there, what do we call them and how do they relate to each other. Both a film and a book have a title, but who is the 'author' of a film? Is that the screenwriter or the director? All of these things have to be standardized in the right way in order to be able to use knowledge about what books you buy at Adlibris [Bonnier owned online book shop] and what articles you read at Expressen [Bonnier owned tabloid/news site] to be able to recommend you a film at C More. Data being stored in different ways creates dirty and unstructured data, which is big data's biggest nightmare" Mr. Kviby explains.

6.4.5 Big Data in Relation to the Business Model

"Overall in the TV-industry, especially on the free-TV side, I think there's a resistance to change that can be seen in the digital transformation in that the industry has been trying to restore the same old system, based on the same legacy business models, in a digital context to be able to continue to do the same thing. We have this ecosystem consisting of production companies, TV-channels, distributors, large advertisers and media agencies where everyone is making a good business and have incentives to keep it the way it has always been – 'why fuck it up?'. The first step is accepting the inevitable change that is happening, and to jump in on this new arena by adjusting the offering to the unique opportunities that a digital first environment has to offer." Mr. Kviby reasons.

One area that Mr. Kviby points out relating to the business model that will be influenced by the use of big data is the way programming is acquired: "Today a lot of our purchases are made based on experience, gut feeling and over a phone call where a bid is placed. In a best case scenario big data will influence the business model in that we won't ever be paying for content that no one values, although that's a long shot. In the future I think rights ownership will be much more flexible, instead of having 4-5 year contracts, and will be traded in an environment similar to Apple's App Store, instead of by walking around in Cannes on the MIPTV Media Market [global distribution market event held twice every year in Cannes] with a glass of wine in one hand and the checkbook in the other." Mr. Kviby explains how he sees big data as a force that will have a direct impact on the business: "If you can become 10% better at acquiring the right content by analyzing data, then you save 10% of your money or you see it as getting 10% more per unit spent. When you've done this you will probably be able to get your users to watch 10% more and might be able to increase average customer

lifetime by say 20%. If you see it that way its obvious data can have a huge effect on your business”.

6.4.6 Hindrances to Developing Big Data Practices

As one of the major hindrances in being able to leverage big data as a competitive advantage Mr. Kviby mentions being able to see what lies ahead and adjusting to it. “I think the major hindrance we’re facing both as an individual company and as part of the Bonnier group is our own ability to see what’s coming around the corner. We need to be able to see how data will affect our business in three years time and act on it today”. Lack of resources is not the most apparent hindrance to leveraging big data at C More according to Mr. Kviby, rather a major hindrance is the fact that C More do not have the skills set needed in relation to data analytics their organization today. “Compared to what we spend on sport and movie rights, the money it takes to leverage big data is peanuts. What we lack though is the skills set needed, because there has never been a need for such competencies at broadcasters before”, Mr. Kviby argues.

6.5 Case: TV4-Group

“Different people on different levels in the organization need different type of reports. People working hands on might need a tool for working with the data whereas the director of programming might want a more overall report”

– Per Åström, CIO at TV4-Group (2015)

Per Åström is the Chief Innovation Officer at TV4-Group, Sweden’s largest commercial broadcaster. Mr. Åström has a solid foundation in the media industry, having worked for several years at different companies and positions in the Schibsted media group, for example as CTO for Aftonbladet and Svenska Dagbladet. Since 2009 Mr. Åström has been with TV4 and since June 2014 he is responsible for driving and enabling innovation in the company, mainly focused on innovation through new technological developments and opportunities stemming from these in his role as CIO. And he sees a great transformation taking place just in the recent years at TV4 and Bonnier AB on a group level: “A lot has happened since Tomas Franzén joined as the new CEO of Bonnier AB in march 2014. Bonnier historically has lagged behind other media groups such as Schibsted in terms of adapting to new technological realities and conditions. Now we are gathering development and our

technological abilities in-house and close to our core businesses. We're also coordinating much better across the group although still driven by the needs of the individual companies. We're looking to catch up the three-four years we are lagging Schibsted". According to Mr. Åström, having development of digital products in-house close to the core, as opposed to outsourcing it to a third party, is key to being successful in today's business environment (2015).

6.5.1 Big Data at TV4

"We're not using the phrasing 'big data' at TV4. We used to do so two-three years ago and the notion then was that 'this is probably something we should be looking at' but we didn't know what sources we could use, who would be working with it etcetera. At that time the big fluffy word big data was pretty convenient as it covers basically everything", Mr. Åström explains.

Since roughly six months back, TV4 has had a renewed focus on the area and has decided to call it plainly data analytics. "We wanted to keep it simple and understandable, make what we're doing less ambiguous and reduce the room for interpretation" Mr. Åström concludes. Organizationally, the data analytics unit at TV4 is kept separate from the viewing and sales analysis and market monitoring units. "The data analytics unit is focusing on the digital traces left by users in the digital products, and is kept separate from all the linear analysis being made so we're not replacing any analysis function at TV4, we're rather trying to complement these units and see ourselves as part of a bigger analysis puzzle". Mr. Åström explains that today, the data analytics team is part of the innovation unit, which in turn sorts under the technology development unit. "It's a good place to start but I wouldn't be so sure the analytics team is still sorting under innovation and technology in two years time, when things have matured a bit", Mr. Åström comments. Today, the small data analytics unit at TV4 is purposely moving around every month to different parts and units of the company, from sales to programming etcetera, in an attempt to try to and integrate data analytics and the findings into the organization. "An important vision has been to try and make our findings actionable, that has been one of the main drivers. The easiest way to do that is by putting up dashboards around the premises. People need to be able to see how we're doing, what clip is getting the most attention, how is the web traffic, and so fourth" (Åström, 2015).

6.5.2 The Development During the Fall 2014

It was during the fall of 2014 that TV4 started working with data analytics for the first time and formed a team led by Mr. Åström as the CIO. The team, that is growing continuously, is built up of developers, statisticians and data analysts and today numbers to seven people including Mr. Åström. “We felt there was a need in the organization to know more about our users and how they behave on our sites. I was basically given the task to take care of this, do what’s necessary to fix it. So we formed a team that started mapping out our data sources and brought in some data scientists that started processing the data and dispersing it throughout the organization.” TV4 started by making a list of all the data sources they had access to, the second step was to sort out what they actually wanted to know. Per Åström’s team started by building their first data layer and producing the first reports that they shared with the rest of the organization. “It is really hard for people to know what they want to know from us, so instead we went out and showed them certain data about our programming – this is how ‘Sveriges Mästerkock’ [Swedish cooking show airing on TV4] is doing on certain dimensions. Different people on different levels in the organization also need different type of reports and access. People working hands on might need a tool for working with the data whereas the director of programming might want a more overall report”, Mr. Åström explains. He continues: “100% of our employees needs to have access to a dashboard where they can look to see how we’re doing, reports maybe half of the employees need to get depending on their position, actually searching and making queries into the data maybe 5-10 % need to do and actual analysis and deep dives based on hypotheses might be done by two data scientists so there is different levels to what kind of data and tools is relevant depending on your task” (Åström, 2015).

6.5.3 TV4 as Part of Bonnier Group

The data TV4 is analyzing today mainly comes from Bonner AB and their data analytics unit called Bonnier Insights. This way, TV4 can access user data from across all sites and applications in the Bonnier ‘Ecosystem’ and not only TV4 sites such as TV4 Play, Fotbollskanalen.se and Recept.nu. The data Bonnier Insight supplies to TV4 including demographical data, user behavior across all sites, segmentation data based on interests and relationship to other Bonnier products. The TV4 Play data goes deeper as TV4 owns the customer relationship, not only including credit card information and email addresses but also the possibility to drill down raw data based on user behavior on the sites relating for example

to when the subscription was started, if TV4 Play airs a large sports event and so on (Åström, 2015). “As Bonnier has one of the largest customer databases in Sweden we can be very accurate in how we target our users, making sure we have the right frequency control so that a particular user isn’t exposed to the same ad to an extent when it feel intrusive or disturbing, and other ‘economies of scale’-effects” Mr. Åström explains the gains from being parts of Bonnier.

6.5.4. Data Analytics in Relation to the Business Model

Mr. Åström argue data analytics play an important part in building the business models for the future for TV4. “The way I see it, technological development and development of the business goes hand in hand to a very large extent. It’s one thing selling ads for ‘Let’s dance’ [large entertainment show airing on TV4 on weekends] in linear TV on a Friday night, and another thing selling ads for a clip or video stream online, and we need to learn much more about how this best is done by analyzing user data”, says Mr. Åström. Linear TV still account for the lion’s share of TV4’s revenues, but the digital part is growing fast, and according to Mr. Åström (2015) his team is working to create the right preconditions to make this business model transition possible, by leveraging data. “The way I see it there is two parts to this transition: first we need to have better products to offer advertisers so that we can fulfill our objective to charge more for the advertising we sell but also make sure the advertising is relevant to consumers and that the advertisers get a better accuracy in who they are trying to reach. The second part is making the products we offer our viewers much better. In a sense TV4 play is today pretty much a broadcast experience as we show the same site to all who enters. It’s practically a schedule. We need to become much more personalized here, making it more user friendly and relevant which in turn enables our ad-offering.” Mr. Åström continues. According to Mr. Åström, TV4 have to adjust the way they sell ads, and how they approach advertisers. Internet has made more targeted ads and better segmentation possible but until now it has been possible for advertisers to reach these specific groups on sites such as Facebook and Google but not on TV4. This is something TV4 wants to enable through its increased focus on digital channels and data analytics (Åström, 2015).

6.5.5 Obstacles and Opportunities in Relation to Big Data at TV4

There are several major hindrances, according to Mr. Åström (2015), to being successful in implementing data analytics into the organization and as an integral part of the business models. Firstly, he mentions overcoming the hurdle that exists in terms of the large investments needed into platforms, people and other resources necessary to being able to extract relevant and actionable data. Secondly, he points at getting the organization in whole to start using the information properly by embracing the power of data and actually listening to and acting on the findings from analyzes made. “There’s a big difference compared to digital companies that base all their decisions on captured and quantifiable data, whereas we have a history of being emotionally driven, basing our decisions to a large extent on gut feeling and what we know works in a TV-program”, Mr. Åström (2015) exemplifies and points out that including more data in the day-to-day decision making will be a process that will take time. “The day our decision-makers begin to have the knowledge needed of what questions to ask, how to use data to find the answers and how to act on it, then we have come a long way in our transformational journey to a digital company”, Mr. Åström concludes. He also mentions working cross-functionally as a key to being able to leverage data analytics. “Data is so closely connected to the business today so we need to work much more across borders. One initiative we made was arranging a hack day where mixed sales staff and technicians and asked them to come up with “ad 2.0” and how we can develop our offering towards advertisers in line with new technological possibilities. We need to launch more initiatives of this sort”, Mr. Åström notes. “The sales man knows what’s possible to sell and what the market is requesting. The technician knows how to build it and how to leverage data and where to access certain information. When you put those two together you can get pretty magical results”, Per Åström concludes but due to confidentiality reasons he does not wish to go into more specifics about the outcomes and ad solutions currently being developed by TV4.

6.6 Summary of Main Empirical Findings

	Degree of big data implementation	Organizational implications	Main possibilities in relation to big data	Main hindrances to implementation	Effects on the business model
MTG	High. Development of own platform and increasing integration into daily operations	<ul style="list-style-type: none"> - Dedicated team, MTG IQ ~15 people (employees and consultants) - Gradual implementation throughout the organization 	<ul style="list-style-type: none"> - Predictive analytics - Reduce customer churn/improve CRM - Increase customer profitability/lifetime - Personalized offerings - Relevant customer communication 	<ul style="list-style-type: none"> - Organizational buy-in - Implementation of data analytics/insights throughout the organization - Overcoming Silo structure and achieving group wide data collection 	<ul style="list-style-type: none"> - Develop new ad-solutions - Strategic transition from sales centric to customer centric - Increase over all customer profitability
SBS Discovery	Low. No existing platform or larger big data practices today. Looking into to the concept and developing new OTT-platform with big data requirements	<ul style="list-style-type: none"> - No dedicated team today - Planning to implement data analytics further on 	<ul style="list-style-type: none"> - Achieving dynamic user recommendations on OTT-platform to get users to stay longer on the site and generate higher ad-revenues - Developing more targeted advertising and more precise customer segmentation 	<ul style="list-style-type: none"> - Limited number of premium subscribers, making user tracking more difficult. 	<ul style="list-style-type: none"> - Revenue increases through development of more targeted online ad-solutions - Increase customer profitability though targeted campaigns/up-sell - Ensuring relevance of offered content
SVT	Medium to low. Starting to utilize A/B-testing and organizing content based on user data.	<ul style="list-style-type: none"> - Small developing team starting to develop big data practices on the side. Not dedicated. 	<ul style="list-style-type: none"> - Developing a better service, based on user data - Improving and personalizing the user experience - Improving relevance of content - Introducing users to a diverse range of content 	<ul style="list-style-type: none"> - No “log-in wall” making it harder to track users - Lack of resources - Privacy concerns 	<ul style="list-style-type: none"> - Enhanced capability to remain relevant for users - Enhanced capability to face users with a diverse range of content → Both in line with SVT’s public service mission
C More	Low. No existing platform or big data practices today. Visionary plans on how to leverage big data in future.	<ul style="list-style-type: none"> - No dedicated team today. - Looking into building up an organization 	<ul style="list-style-type: none"> - Customized and personalized site offering and user experience - Reducing irrelevant material - Enhancing content procurement 	<ul style="list-style-type: none"> - Too small available data set, making potential insights irrelevant or too narrow - Lack of needed skill set/data analytics competencies in existing organization 	<ul style="list-style-type: none"> - Cost savings through more efficient and relevant content procurement - Accelerate transition from the old ‘value-chain’ into a digital first business model - Ensuring relevance of offered content
TV4-Group	High. Development of internal big data practices in cooperation with Bonnier Insights.	<ul style="list-style-type: none"> - Dedicated team, ~7 people - Data analytics units currently rotating the organization to spur implementation 	<ul style="list-style-type: none"> - Leveraging cross-functional work streams including all parts of the organization - Developing new ad-offerings - Data driven organization - Increase business orientation by visualizing KPI’s 	<ul style="list-style-type: none"> - Large upfront investments needed into technical platforms and human capital. - Organizational buy-in - Implementation and embracement of big data analytics in day-to-day decision making 	<ul style="list-style-type: none"> - Development of new advertising solutions - Developing a more relevant and personalized service to be able to increase revenue - Enabling successful competition for digital ad spend for personalized and targeted ads

Table 4: Summary of main empirical findings

7. Analysis

In this chapter we will analyze our empirical results, derived from the case studies, by relating them to the business model literature and theories presented in chapter two. The analysis is divided into four sections based on the research questions this thesis set out to answer. The first section will seek reasons explaining the degree to which each broadcaster is utilizing big data by looking at their employed business model as well as historical development/heritage. The second section will seek to relate the identified opportunities of using big data to the

business model literature. The third section will try to identify how the main hindrances for utilizing big data relate to the employed business model. Lastly, the fourth section will try to establish the overall relationship between big data and the business model by identifying a number of linkages between the two concepts. Finally we will try to summarize all of our findings in a synthesized model, visualizing the findings from our research.

In addition to fulfilling the purpose of this thesis, to explore the use of big data in the Swedish TV-industry as of today, the analysis will seek to provide a better understanding of how business models are affected by the use of big data and how different firms are handling the process of adjusting their business model to new technological developments.

(R1) How, and to what extent, are Swedish broadcasters utilizing big data?

(R2) What is the main goal of using big data?

(R3) What are the main hindrances for utilizing big data?

(R4) How does big data relate to and affect the business model?

7.1 Stages of Big Data Implementation at Broadcasters Today

After summarizing the presented empirical findings, and as shown in Table 4 above, it is clear that the studied firms are at different stages in developing big data practices. The two frontrunners have been identified as TV4-Group and MTG as these firms have dedicated teams in place who work full time on big data analytics and how to leverage this in relation to the employed business model. SVT has been identified as the actor placing itself third, and C More and SBS Discovery as the two firms who are in the earliest stages of developing big data practices.

According to Chesbrough and Rosenbloom (2002) technological management literature has shown that incumbent firms can display great difficulty in managing innovations and technological developments that fall outside of their previous experience. Others scholars have argued to the opposite, that firms may indeed be able to capture value offered by new technological developments although the way in which this is to be successfully executed varies between researchers. This study suggests some incumbent firms, such as MTG and TV4 are on their way to successfully adapting their business model to the new technological

realities such as big data, whereas others, such as SBS Discovery and C More, display greater difficulty in managing the same transition.

Chesbrough and Rosenbloom (2002) argue that the business model can provide a framework taking technological characteristics and potentials as inputs and converting them through customers and markets into economic outputs. This notion can be used when plotting out the situation in the broadcasting industry and studying how far different actors have come in their implementation of big data in daily operations and as a part of the business model. We argue the reason that some firms have not come as far as their peers in their use of big data analytics can be explained by a difficulty in perceiving the possibility and urgency to develop new business models given technological changes. This is related to the ‘cognitive role’ business models play (Chesbrough and Rosenbloom, 2002). Actors such as MTG have been able to use the business model as a focusing device that has helped management navigate technological development in order to identify potential areas for value creation. As Mr. Forsberg explains in the MTG-case study, he got a query from the board of directors asking what MTG was doing to leverage big data and started thinking right away about how they could use big data to capture economic value. Other actors, such as SBS Discovery, does not exhibit the same understanding of the cognitive role of the business model – something that is needed in order to commercialize technology and capture value from technology investments (Chesbrough and Rosenbloom, 2002). Hence, we conclude that a company’s ability to use the business model as a focusing device for what technological investments to make partly can explain the observed differences between industry players in their degree of using big data analytics.

Johnson et al. (2008) identifies three opportunities and two needs for firms to reinvent their business models. These opportunities and needs can be related to the digital transformation currently taking place on the Swedish TV-market and to the new reality brought about by big data. By reinventing the business model by capitalizing on new technology (Johnson et al, 2008) broadcasters have the possibility to create a competitive advantage towards the competition. Although too soon to draw any ultimate conclusions based on the empirical findings presented in this thesis, time will tell whether or not the frontrunners (amongst legacy players) identified as MTG and TV4-Group will be able to leverage their head start in big data utilization to build and retain a competitive advantage over time. As a disruptive shift in competition is undoubtedly taking place in the industry, due to the entry of global players such as Netflix – with a clear focus on leveraging data to their advantage – we argue that one

of the ‘needs’ to reinvent the business model named by Johnson et al. (2008) is also met. Hence, the need to implement big data for incumbent firms is of great importance – if not as a source for competitive advantage then as a necessity to be competitive.

7.2 Identified Opportunities in Relation to Big Data

In this section we will relate the identified opportunities that big data enable to the business model literature.

According to Teece (2010) the business model defines the manner by which the enterprise delivers value to customers, entices customers to pay for value and converts payments to profits. Through our research we have identified several opportunities enabled by big data in relation to how the firms can do all of the elements named: deliver value, entice customers to pay and convert payments to profit.

Firstly, big data can help deliver value to customers by improving the offered service. This is an opportunity that was mentioned by the respondents in all of the case studies, underlining the importance of the ‘Customer value proposition’ (Johnson et al, 2008) opportunity enabled by big data. Mr. Sahlee (SBS Discovery), Mr. Rahm (SVT) and Mr. Åström (TV4-Group) all emphasized being able to develop personalized recommendations based on user data as one of the major opportunities in relation to big data analytics. Mr. Rahm (SVT; public service) mentioned this in relation to fulfilling the public service mission of staying relevant to the public and Mr. Sahlee and Mr. Åström (SBS Discovery, TV4; ad-funded) in relation to the ability to generate higher revenues as user spend longer time on their respective sites. This further underlines the close interconnectedness between delivering value to customers and creating economic value for the business.

Secondly, our findings show that big data can enable how firms entice customers to pay for value. Besides offering a better service based on user behavior and insights derived from data, our research show that firms are able to leverage big data in their CRM and marketing efforts. Mr. Forsberg (MTG) explains how predictive analysis can reduce customer churn and help MTG develop personalized offerings based on users exhibited behavior. By offering personalized deals to customers potentially looking to cancel their subscription firms can ensure the subscribers are kept on and continue to pay for the service.

Thirdly, in relation to Teece (2010) big data offer an opportunity as it can help convert customer payments to profit. This relates to what Johnson et al. (2008) defines as the profit formula, or how the business model generates value for the company. Several different parts such as cost structure, margins and inventory turnover build up the profit formula and big data can help shift cost structures and increase margins by enhancing the procurement function. Mr. Kviby (C More) exemplify that by using big data to learn what content users are actually watching and are willing to pay for, content spend can be reduced greatly thus improving profit conversion and increasing margins.

Another opportunity identified by this study is that of developing new advertising solutions based on findings in data analytics. Bower and Christensen (1995) point out that established firms may struggle when new competitors introduce new technology that disrupt the industry as the established firms fail to innovate their business model in accordance with the new technology. As targeted online advertising has grown greatly, led by the entry of internet giants such as Google and Facebook on the Swedish ad-market, traditional media houses have seen their ad revenues drop sharply and the need to reinvent their offering towards potential advertisers grow. Online actors such as Google have been able to leverage user data such as previous browsing behavior to greatly improve segmentation. This has made it possible for advertisers to target very specific customer groups – say 10-15 year old girls that play soccer. This new offering has made the traditional broadcast advertising offering obsolete to some extent, as it does not offer the same refined segmentation. As Mr. Åström (TV4) puts it: “It’s one thing selling ads for ‘Let’s dance’ in linear TV on a Friday night, and another thing selling ads for a clip or video stream online, and we need to learn much more about how this best is done by analyzing user data”. To be able to compete with new players on the digital advertising market incumbent firms also have to develop these new advertising solutions by investing in new technologies. An explanation to the relatively slow start among Swedish incumbent firms in innovating their business models in accordance with new technological advances such as big data analytics can be found in Bower and Christensen’s (1995) research. They conclude that a reason for established companies not to invest can be that the existing cost structures and revenue/sales situation provides little incentive to invest in the new offering. This explanation is substantiated by our empirical findings as Mr. Åström (TV4) points to linear TV still accounting for the lion’s share of revenue as a reason that not greater focus have been placed on developing ad offerings for the future and the OTT-offering.

Although only explicitly stated by Mr. Kviby (C More) it is reasonable to believe that fear of antagonizing distributors and risking the traditional business model by approaching customers directly have been a major concern that has slowed down business model innovation among the incumbent firms. Now the industry and legacy players have come to the point where new technology not only compete but outcompete the existing market. Online ad sales are the single largest area for media investments made in Sweden and firms cannot longer reject the new possibilities enabled by the new technology (Bower and Christensen, 1995).

Thanks to the increasing online focus and use of big data analytics, broadcasters are presented with the opportunity to innovate their ad offering by personalizing ad-messages and refining segmentation, our research show. The possibility to learn more about the users, personalize the user experience and be able to show them personalized and targeted ad messages has made established players such as MTG, TV4 and SBS Discovery finally consider the disruptive technology as a viable market opportunity.

7.2.1 Classifying Identified Opportunities

To summarize, the opportunities identified above can be classified into three groups: ‘*CRM and Marketing*’, ‘*Advertising*’ and ‘*Content and product*’.

CRM and Marketing include opportunities in relation to marketing communication towards new as well as existing users in CRM-efforts. These opportunities can be grouped as follows:

- 1) *Personalized offerings*: based on user behavior broadcasters are able to tailor the offerings to match the users needs, interests and previous behavior. This include both campaigns and anti-churn offerings towards customers prone to churn (MTG)
- 2) *Variables for segmentation*: better variables for segmentation enables more refined, targeted and effective marketing (SBS Discovery, TV4, C More)
- 3) *Predictive analytics*: big data enable predictive analysis regarding customer needs, churn probability and attractive content. This enables firms to better focus their effort on value creating actions (MTG, C More, TV4)

Advertising include opportunities in relation to the ad-business:

- 1) *New advertising solutions*: enabled for example through the merger of the traditional sales division with insights from data analytics (TV4, SBS Discovery)

- 2) *Personalized ad-messages*: being able to deliver customized ad messages depending on user demographics, interests and other observed information (TV4, SBS Discovery)
- 3) *Refined segmentation*: enable better accuracy, higher prices and being able to compete with players such as Google and Facebook in terms of targeted ads (SBS Discovery, TV4)

Content and product concern opportunities in relation to the user experience, how content is developed, procured and presented as well as overall product developments based on user insights. These opportunities can be divided into three sub-groups:

- 1) *Personalized user experience*: meaning that the user experience and the content the user is exposed to differs based on who is entering the site and previous browsing behavior (C More, TV4)
- 2) *Enhanced purchasing/production*: comprising the procurement/production efficiencies that can be achieved by applying more data driven procurement strategies (C More)
- 3) *Product development*: big data driven product development relates to changes in product design and/or functionality based on insights gained from analyzing user behavior across the site (SVT, C More, TV4)

7.3 Identified Hindrances in Relation to Big Data

As seen above, there are many opportunities in becoming more data driven and integrating big data practices into the organization. However, it is also clear firms on the Swedish market have not come very far in restructuring their business models in accordance with big data compared to international competition. In this section we will seek explanations as to why this is the case, by presenting identified inhibitor effects throughout the industry.

7.3.1 Perceiving a New Business Model

All of the studied firms have put “big data” on the agenda. However we see that some are prioritizing the issue more than others. One reason for this is that some of the firms, such as MTG and TV4 have been able to see how big data could interlink with their business model in a more concrete way, and thereby are in the process of developing their business model in accordance. The fact that both MTG and TV4 see clear and actionable links in how to

monetize the power of big data we see as a main point that spurs the development. This goes hand in hand with their tradition of being very commercially driven broadcasters. MTG even see themselves as a sales company first and a broadcaster second. Both MTG and TV4 have managed to be leading companies within the industry for many years, which shows an ability to continually rethink their business model in order to stay ahead. This is in line with what both Johnson (2008) and Chesbrough and Rosenbloom (2002) states: that it is important for companies to be able to perceive and enact new business models in order to maintain a competitive edge.

C More have struggled commercially in recent years and it is also stated in the case that the ability to rethink the business model and perceive a new one that will work in a few years time historically has been one of the major hindrances for leveraging new technologies at C More. SBS Discovery, although a commercially driven player, showed signs of being challenged in reevaluating their own business model. SBS Discovery seems to struggle in evaluating the possibilities that big data can bring them, something other players clearly see. This is in line with what Bower and Christensen (1995) describes as a major risk for legacy firms: they see the disruptive technology, and have the possibility to implement it, but reject or postpone it since it demands investments and changes in the existing business model. Rejection or postponement of implementing new technology put them at risk for being overtaken by more agile players. Another explanation to why C More and SBS Discovery have not come as far in restructuring their business models to benefit from big data is that they are currently taking on other big projects. For SBS Discovery it is possible that the development and launch of the new group wide OTT-platform D Play has been prioritized over big data. At C More, it is conceivable that a focus on first a financial turnaround and secondly the launch of the new Bonnier OTT-platform has drawn attention and resources from a focus on big data.

7.3.2 Aligning the Organization

A recurring obstacle for utilizing big data that was brought up in the interviews are the organizational issues that comes with such a transition. In a majority of the studied firms, data analysis has previously been carried out in silos. This means that the inter-organizational exchange of data previously have been limited. In order to succeed in the transition into a more data driven company the whole organization need to develop an understanding for the

topic and start cooperating across divisions. This means that people will have to work in new ways. As Mr. Forsberg (MTG) puts it: “/.../It’s pretty hard to get the organization on board. /.../ All the technological abilities we need to leverage big data are in place, now we need to get our people to actually use it and make it part of their daily work”. Getting people throughout the organization to interact with and use data analysis as a part of their daily work is something also Mr. Åström (TV4) mentions as crucial in leveraging big data. Our analysis is in line with that of Messrs. Forsberg and Åström in the sense that we also conclude the actual technical transition is less of an obstacle to overcome. The bigger issue identified through this study is achieving acceptance and buy-in from the organization. Transitioning into a data driven firm is a major undertaking, especially in a creative business such as the television industry where many decisions regarding acquisitions and content production traditionally have been based on experience and ‘gut feeling’.

Another interconnected issue that has been identified throughout the course of this study is the need to find the right talent. The previously identified frontrunners both have formed dedicated teams focusing on the task, while the lagging companies have yet to do so. Something that is reflected in their view on big data and the possibilities it brings. As Mr. Kviby (C More) describes the problem: “What we lack is the skills set needed, because there has never been a need for such competencies at broadcasters before”. As pinpointed by Mr. Kviby, the necessary talent often has to be recruited from outside the firm, and hence is dependent on a committed management team that is determined to leverage big data and willing to spend the resources necessary to do so. These issues concerning organizational restructuring and talent supply are brought up in the report by Manyika et al. (2011). They state that these are common problems facing companies undertaking a transitioning into big data. If the firms do not manage these issues successfully they reduce the value capturing of their business model when implementing the new technology, according to Chesbrough and Rosenbloom (2002).

7.3.3 Legacy Systems and Incompatible Standards

Closely linked to the issue concerning organizational silos is the problem of different systems and standards that have been developed during the years within the organizations. When companies are trying to be more coherent in their data analysis and data mining, this problem rises to the surface. Both industry frontrunners, MTG and TV4, highlighted this as a big

problem. We believe this notion to be more urgent amongst the frontrunners as they have already been forced to deal with these issues. C More also raised the concern of merging different systems as a daunting task. C More's Mr. Kviby brought up the need for taxonomy before being able to leverage the full potential of the data C More have access to via Bonnier Insight as a part of Bonnier AB. The other firms did not raise concerns regarding this issue. We have identified two explanations to why this is an issue for some and not for others. Firstly, the companies who have not yet engaged in the transitional process are simply not aware of this problem. Secondly, the players raising concerns are part of large media conglomerates including other business than broadcasting and hence wish to utilize all its data potential. In contradiction to this explanation, SBS Discovery is also part of a large media group. An important difference here, though, is the fact that Discovery Communications only recently acquired SBS Media Group from ProSiebenSat.1 Media, that Discovery Communications mainly is built up by other international tv-channels and no complementary local media businesses such as MTG and Bonnier offer, and that SBS Discovery not yet have started implementing big data to its full extent and thereby have not encountered the issue. SVT, although a large company, do not have to handle the complexity of merging data from several business divisions, something that indicates a greater probability of them already having aligned systems and formatting for data collection.

7.3.4 Data Sources and Privacy Concerns

All companies have the ability to mine data from different sources. However, many bring up their OTT-services, commonly known as 'play-services', as one of the most important tools for gathering primary data. It is from these the broadcasters get to know the users' behaviors. Therefore it is important that the service is designed in a way so that it can provide detailed information and is able to link the behavior to the individual users. The better the service and back-end solution in this respect, the more qualitative data the firm running the service can gather. Not being able to gather the right data, regardless of the reason, is of course something that hinders the implementation of big data analytics. SVT brings up the problem of tracking the exact person visiting the site since they do not have a log-in-wall. Although SVT have among the highest numbers of users in the industry on their streaming site SVT Play, and hence an extensive base for collecting high-quality data, they cannot identify who is doing what since the site does not require a log in that is linked to an email address. This is hampering the possibilities SVT has to personalize their site based on who is entering. What

SVT could do is use cookie based tracking but as a public service company, SVT's need to act very carefully in relation to privacy questions and do not wish to risk violating any privacy agreements or anger public opinion. Although every firm has to relate themselves to the privacy issue and potential privacy concerns from users (for example in terms of how gathering of user data affects the costumers' perception of the company), this is not something that is seen as a big concern or hindrance according to our research.

C More and SBS Discovery bring up the opposite side of the problem. They have the possibility to track who is doing what on their services, but their user base is perhaps too small to leverage the full potential. This can be explained by a lack of focus on identifying and enacting new business models as opportunities and/or needs presents themselves on the market, as identified by Johnson et al. (2008). C More have yet to identify how to utilize big data to improve their customer value proposition and profit formula as well as how to leverage the full strength of the Bonnier ecosystem as a source for primary data. Our research also show that at the moment SBS Discovery seem to be too narrow in their scoop of where to gather data in order to reach desirable volumes. Integrating further into the Discovery Communications group, SBS Discovery might be able to utilize group wide data to gain better leverage in their analyses.

Another inhibitor that has been identified through our study is the industry unwillingness to share data. This is logical in the sense that, in line with research by Chesbrough and Rosenbloom (2002), the data gathered by each firm is seen as proprietary and part of the respective firms competitive strategy and as something that will provide a competitive edge. However, this line of reasoning also hampers the industry's ability to utilize big data's full potential. At the moment all the organizations are looking at their currently existing customer pool for data, which means that they will know a lot about the customers that they already have, but very little about the ones they do not have – but very well want. C More's Robert Kviby is visionary concerning this area and wish for a reality where data is shared more openly between industry players. However, we believe the fact that C More have yet to engage in advanced big data practices might affect their opinion. After investing heavily into big data capabilities, we believe that they too will be reluctant to share their data in order to capitalize on their investment.

7.3.5 Resource Allocation and Opportunity Cost

Manyika et al (2011) bring up the cost of implementing big data analytics in their report. This study can confirm a high initial cost and human capital-intensive operations as one of the identified hurdles for implementing big data capabilities. For SVT this is a particularly apparent issue as they play a ‘zero sum game’ – they have their allocated resources and investing in big data analytics comes with a noticeable opportunity cost as funding need to be subtracted elsewhere, such as programming production. Since SVT do not have a profitability requirement in the same way as the commercial players many of the commercial upsides gained through the use of big data does not apply to them. This indicated why the area might not be as prioritized as at TV4 or MTG.

7.3.6 Summarizing the Inhibitors

All the inhibitors identified in this study are affecting the shaping of a new business model in one way or another. The hurdles identified by this study provide explanation to why established firms have problems managing new innovations and integrating them with their business model as outlined by Chesbrough and Rosenbloom (2002). This study has identified examples of inhibitors that are closely connected to the technology itself, in terms of different systems, formats and privacy concerns. Other identified inhibitors are connected to how firms access surrounding resources such as talents and additional data sources. Some of the identified inhibitors are related to the management teams and their ability to perceive and enact a new business model, shifting the organizations in accordance to the new way of working or how to evaluate the opportunity costs. As Chesbrough and Rosenbloom (2002) state in their research inhibitors such as these render the full value of the new technology latent until the problems are overcome. However, by investing in integrative capabilities (Henderson, 1994), ambidextrous internal processes (Tushman and O'Reilly, 1997) or complementary assets (Tripsas, 1997) it is possible also for established firms to overcome the presented challenges. TV4-Group as well as MTG has been able to do so by establishing dedicated teams focusing solely on big data implementation, trying to reconfigure and merge processes from the old business model into the new. This has been accompanied by heavy investments into new systems capable of handling and supporting the big data implementation. Collectively, these are the measures identified by this study as key explanation points to why these two actors are in the forefront among the established players in reigning the power of big data.

7.4 Big Data and the Business Model

As outlined above, this study is able to identify a number of opportunities and hindrances to leveraging big data analytics and allow for it to affect the enacted business model. All of the identified enablers and inhibitors are closely connected to the business model and can be related to earlier research on business model development and innovation. For example, use of big data analytics can remove uncertainty in the employed business model by replacing management hypothesis with actually confirmable data about customer preferences, in accordance with research by Teece (2010)

Throughout our research it has become increasingly clear that big data analytics and the opportunities offered by implementing such a practice at broadcasters is closely tied to their business model as well as management's ability to perceive and enact new business models in alignment with the new technology (Chesbrough and Rosenbloom, 2002). In order to derive value from implementing new technologies such as big data analytics, they need to find the right "architecture of revenue" (Rosenbloom and Spencer, 1996). Although big data is closely connected to capturing value from new technologies and developing the right revenue architecture to be able to capture value, be it through improved ad sales or a better and more personalized service that users are willing to pay for, we feel it is important to underline that it is not the introduction of big data itself that enable and require the development of new business models. Rather, it is the technological development considered as a whole, where emergence of big data plays an important part. These technological developments also include the emergence of the World Wide Web, the dispersion of high speed Internet, and the ability to stream high quality video and collectively should be seen as the principal trigger for business model innovation. We argue that Netflix's emergence as one of the most successful SVOD-services across the globe surely was not enabled exclusively through the introduction of big data itself but rather by the technological advances made in recent years taken collectively. With that said, it is not as clear weather or not Netflix would have been able to disrupt the industry as thoroughly and rapidly as they have without dedicated implementation of advanced data analytics throughout the organization. This is outside the scope of this thesis, and an interesting question for another study to dive deeper into, but the notion non-the less points to the important part big data analytics play as a source of competitive advantage and business model innovation. To conclude our standpoint and conclusions after reviewing

the empirical findings of this study: although big data *can* require a major overhaul of the business model it does not have to do so. What is clear is that big data is closely related to business model innovation, to making the employed business model work effectively to capture value and function as a source for developing a competitive advantage.

7.5 Derived Model

Through this study we have been available to identify a number of opportunities that big data analytics entails for broadcasters. These opportunities have an established impact on the business model employed and on the firm's value capturing capabilities. The degree to which different players have begun to implement big data can also be explained by business models theories concerning for example management's ability to identify and enact new business models in relation to the new technology big data is. The identified opportunities can be contrasted against the hindrances also identified by in thesis. Taken collectively, the opportunities that come with big data outweigh the obstacles to be able to implement it successfully. As long as the presented hindrances are taken into consideration and are carefully addressed, it is entirely possible to overcome them with determination and will. We have attempted to gather the findings regarding how big data analytics relate to the business model in Figure 2 below.

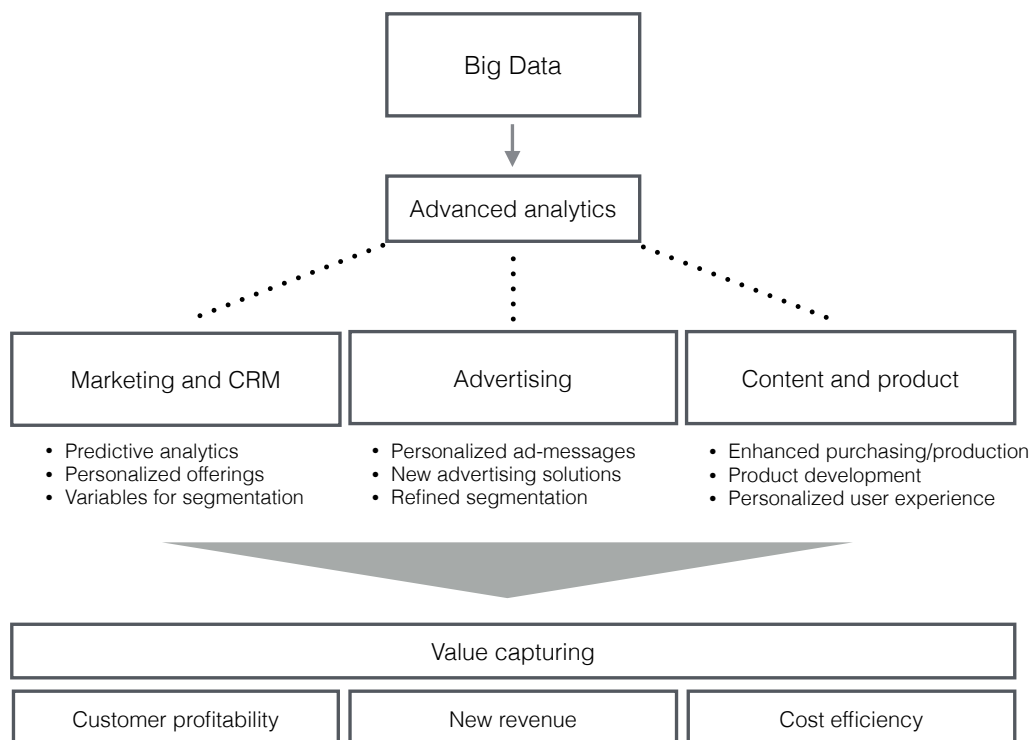


Figure 2: How big data relates to the business model

The continuous gathering of qualitative sets of data is of course the basis for any data analytics to take place. Although the data can be gathered from numerous sources, the broadcasters own OTT-service will naturally play an important part as a source of user data, that continuously builds on. After gathering a set of data, broadcasters have the possibility to dive into the data and perform analysis in order to extract relevant insights regarding the users behavior etcetera. The insights gained from the advanced analytics can be classified into three groups based on how they can be used. These are the top three boxes: Marketing and CRM, Advertising and Content and product. Under each of the groups we have listed three ways in which the firms are able to leverage the insights gained from big data analytics in order to improve their business model. See section 7.2.1 for a more detailed description of each and every identified opportunity. Collectively, the identified opportunities within different areas of the business leads to improved value capturing and a development of the broadcasters business model. The captured value can be divided into three sub-groups: 1) Customer profitability, enabled for example by increased customer lifetime and increased average revenue per user thanks to personalized anti-churn offerings or a better/more personalized user experience. 2) New revenue, generated for example through the development of new advertising solutions or more well targeted marketing communications towards new customers. 3) Cost efficiencies obtained for example through an improved procurement function as data can help buyers buy only content that users request and are willing to pay for.

Collectively, the model shows how big data can affect the business model and value capturing activities at broadcasters. Hindrances to succeeding with big data analytics have been left out of this model as they do not add value but rather are obstacles that have to be overcome.

8. Concluding Discussions

8.1 Conclusion

This thesis set out to explore the use of big data at broadcasters in the Swedish TV-industry and how this relates to their business models. A pre-study was conducted in order to get an overview of the situation on the market and to ensure the relevance of the research questions posed. A fourth research question was added after the completion of the pre-study and we also adapted a more clear focus on business models. The pre-study also helped identify firms for

the case studies. Hence, the purpose of our research was to answer the following research questions:

- (R1) How, and to what extent, are Swedish broadcasters utilizing big data?
- (R2) What is the main goal of using big data?
- (R3) What are the main hindrances for utilizing big data?
- (R4) How does big data relate to and affect the business model?

Case studies were conducted at the five legacy players in the industry in order to get as broad a picture of the market as possible. With basis in the empirical findings from the case studies, previous research on big data and theory regarding business models we analyzed the gathered material, draw conclusion based in theory and developed a model for how big data affects the business model and help capture value at broadcasters (see Figure 2). In this chapter we will present the conclusions drawn as a result of the study by providing the short answer to the research questions posed.

8.1.1 Industry Situation

Our research show that industry players are at different stages and levels in their development and implementation of big data throughout the organization. TV4 and MTG are in the forefront of this development, whereas SVT, C More and SBS Discover all have initiated big data practices but, due to different reasons, not come as far in this development. We find that the different levels of big data utilization between actors can be explained by a firm's ability to perceive the possibility and urgency to develop new business models given the technological changes currently taking place.

The identified frontrunners, TV4 and MTG, have been able to use the business model concept as a focusing device to help navigate technological development and as a consequence identified big data as an area for value creation. We further conclude that big data adaption can function as a competitive advantage, although to fully answer whether or not this will be the case for the Swedish broadcasters, future developments would have to be studied.

8.1.2 Activators and Inhibitors

This study have identified several opportunities enabled by big data in relation to the business model and the manner in which an enterprise capture and deliver value to customers. These opportunities, and the relationship to the business model are visualized in Figure 2 above. In short, the main opportunities identified as enabled by big data can be classified in three different groups: opportunities in relation to CRM and Marketing, Advertising and Content and Product. For a more detailed description of the opportunities within each of these groups, please see section 7.2.1.

This study has also identified a number of potential hindrances to successful implementation of big data. These hindrances include the ability to perceive a new business model. If a firm fails to rethink their current business model, and is too focused on retaining their present one, they will have a difficulty in leveraging new technological possibilities such as big data to their advantage. Other hindrances include aligning the organization around big data and adapting a more data driven way of working. Transitioning from ‘gut feeling’ and acting on experience into more data driven decision-making has proved difficult. Legacy systems and incompatible standards is also identified as a major hindrance to leveraging big data, as well as privacy concerns when user data is stored and analyze and having the right sources for gathering qualitative data. Finally, the opportunity cost of spending scarce resources on implementing big data practices is identified as a potential inhibitor for players with limited resources.

8.1.3 Value Capturing

The study is able to conclude that big data analytics and the opportunities it brings is closely tied to the business model. All of the above identified enablers are closely interlinked with the business model and have impact on the value capturing activities performed by the firm. Hence, big data plays an important part for broadcasters in capturing value in today’s digital reality. Although big data is closely connected to the development of new business models, the study conclude that big data itself should not be viewed as a sole disruptive force that require a business model overhaul. Rather, technological development considered as a whole (where big data plays an important part) should be seen as the principal trigger for business model innovation.

8.2 Strategic and Managerial Implications

As shown by our analysis of the Swedish broadcasting industry, big data is something that will affect the companies' presence on the market and their way of doing business going forward, in one way or another. Either as the companies themselves attempt to implement big data or by data driven competitors changing the rules of the market. A shift towards organizations being more data driven in their decision-making naturally implies managerial consequences. The conclusions we can draw from our study, in relation to managerial implications, are the following:

First of all, we found that it is of essence that managers of companies have the ability to perceive new business models. If they are lacking this tentative skill, they put the company at risk of being overtaken by competitors, as it does not keep up with technological developments. This issue can be handled by hiring managers that are tentative to trends and disruptive market movements and also possess the ability to enact and implement a new business model once the need for it has been identified. Another possibility for the management team is to surround themselves with knowledgeable advisors, who are experts on disruptive technologies and hence better suited to quickly see when a shift in the market is approaching. Consider for example the first mover advantages captured by the newspaper Aftonbladet as it moved online much earlier than the competition in the digital transformation of the Swedish newspaper industry. Having a manager that has one ear to the ground grows increasingly important in times of fast changing technological developments. As a manager, you either need to find and train the right talent within your company or search elsewhere, which can be challenging since the demand exceeds supply of people with the right technological and business qualifications at the moment.

The second implication concerns the framework that we have developed, aimed at understanding big data's effect on the business model. As it is possible to approach big data from many different angles it is important to know what big data could bring to a specific company and business model, and how big data can help improve value capturing. If you as a manager do not know what big data related actions that will affect your company in a beneficial way, it is possible that an implementation could lead to latent value effects. Meaning that the value contribution of the implementation of big data might not exceed the cost of implementation. Hence, you might create inefficiencies in the company rather than the efficiencies you strive for.

The third implication we feel a need to highlight is that an implementation of big data is not an easy task. It calls for a big investment, procedural restructurings and is dependent on organizational acceptance and buy-in. However, if the implementation is done correctly by allocating enough financial resources and dedicating the right human resources, there are considerable value gains to be had.

The last implication concerns data sources. It is important to combine several sources of data to get a qualitative set of data. If managers have a too narrow view of what data to use, the effectiveness gained of implementing big data will suffer. Even though merging data from several different sources can be a daunting task because of different systems or incompatible formatting it is essential in order to secure a high quality of the data set, and thereby get more reliable data to act on. Without an extensive data layer as the foundation for launching big data practices the value captured in doing so will be reduced or latent.

8.3 Critical Reflections

We choose an explorative, in-depth, research approach since the field is still in its infancy and theory concerning big data is scarce. This means that the generalizability of our findings could be seen as a low. However, the intention has not been to test theory, but rather to induce the big data research field with new theories. One could argue that the quality of the theories generated would become even stronger if the empirical basis for them would have been more extensive. Firstly, we could have broadened our perspective and included other players, closely connected to the industry, in our study. It would have been interesting to include both Netflix and HBO Nordic who arguably can be seen as disruptive forces on the Nordic OTT/SVOD-market. This could have introduced a new perspective on our theories since at least Netflix is claiming to be extremely data driven in their business and rely heavily on big data for their purchasing operations and user experience design. Since many of the players that we have interviewed are in an early stage of implementation, Netflix could have served as an interesting example for what the future holds for the legacy broadcasters. It is hard to say what effect the inclusion of disruptive players such as Netflix and HBO would have had on our research and the model generated. Nonetheless the inclusion of disruptive actors would have been interesting.

Secondly, including other industries in our research could have enhanced the generalizability of the findings from this study. We had a clear focus on traditional broadcasters as a basis for our study, as we needed to keep a manageable scope of the thesis, but an inclusion of other industries could have added other interesting perspectives. Conducting research on other industries such as retailing, consultancy or governmental organizations would certainly provide a broader perspective that would be interesting to contrast against the findings in this study from this particular industry.

Thirdly, it can be argued that including more interviewees in the study would further increase the generalizability of our findings. This is something we attempted to fulfill but found difficult as the field of big data is new and not very many in the organizations were knowledgeable about the topic. Hence, the assortment of potential interviewees was limited. We also felt that our interviews, often lasting well over an hour, was very exhaustive and the interviewees very knowledgeable about the area. It would, of course, have been possible for us to conduct additional interviews with others in the organizations, but then the focus of the interview would have had to be on the business model in a more general sense. As we wanted to keep a clear focus on big data throughout our research and found our initial interviews to be knowledgeable about the business model area as well, we did not find this necessary.

Fourthly, we could have approached the conducted research differently, by approaching a fewer number of firms within the industry and instead try to go even more in-depth in each case study (i.e. interview more people). This would, however, result in us facing the same difficulties as discussed above for each and every case. Employing an even more in-depth approach would have allowed more time to investigate each case more thoroughly and could have yielded different results, which could have led to us drawing additional conclusions. With this said, we still feel we were able to achieve good depth in our case studies.

Finally, regarding our choice of business models theory as the focal point for our research we could have decided to go in another direction and taking more of a macro perspective when analyzing the effects of big data. One possibility could have been to focus on one of the identified areas more thoroughly. E.g. studying only what effect big data has on marketing and CRM in relation to the business model. However, as this field of research is new the overarching perspective felt more suitable in order to identify all the components relevant for the industry. It would also be interesting to adapt a more technical approach when studying a

technically advanced area such as big data, but we found our technical knowledge base slightly insufficient to embark down that path.

8.4 Suggestions for Future Research

We propose that the theoretical framework we have developed could be seen as a starting point for future research. To dwell deeper into each identified area of *Marketing and CRM*, *Advertising* and *Content and Product*, and expand the theory base even more or to conduct a quantitative study on the actual effects from each area would be an interesting next step in expanding the big data research field. E.g. how much more value does a big data-driven approach in purchasing content generate in comparison to the traditional basic analysis and “gut feeling” approach. Similar studies could be developed for the other areas as well.

Another interesting research area to explore is how to successfully transform an organization into being more data driven and to identify key success factors. The difficulty in aligning the existing organization around big data practices is something that was frequently brought up during the conducted interviews and it would be interesting to conclude whether big data implementation place greater demands on the organization than other organizational changes. This topic could be closely linked to existing theories regarding organizational transformation. A third interesting research topic would be to study the effects of big data on privacy concerns among users. Is big data analytics based on stored user data generally accepted or do users raise concerns in relation to privacy? And, how should organizations using big data handle these issues in a smart way while both respecting the user privacy but without losing the value capturing abilities big data offer?

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Appendix 1: Interview Guide

- Current position
- Primary duties
- Educational background
- Previous employment and positions
- Time at the company

Big Data

- Do you use the term Big Data at your company today?
- How would you define the term big data?
- What types of data are you working with?
- How do you collect data and what does the processes for doing so look like?
- How are you organized for this area?
- Would you say this is a prioritized area? Why?
- What are the consequences required to leverage big data?
- What initiatives are currently taken to utilize big data?
- What, in your opinion, are the greatest possibilities for (Firm X) through the utilization of big data?
- What, in your opinion, are the greatest hindrances for (Firm X) in utilizing big data?

ONLY if firm is part of conglomerate:

(Firm X) as part of (group Y):

- How is your firm's big data operations affected?
- Are there any initiatives at the corporate level?
- What does the division of resources look like in relation to big data?

Business Model

- Please describe the overall concept of your business (parent company/unit) and any possible transition taking place?
- How would you describe your company's position in the big data value chain?
- Who are your B2B partners?
- Who are your B2C customers?

- Please describe the products/services you offer, do they differ depending on the type of customer?
- Please describe your revenue model for your OTT-offering
- Please describe your revenue model for your Linear-offering (DTV)
- What, in your opinion, are the most important resources needed to create and deliver the offering?
- What have been your company's strategy behind underlying changes in the business model?
- Please mention any specific external factors that made a change in the business model necessary
- Please mention any specific changes in user behavior that made a change in the business model necessary
- What is your view on technological developments in relation to your business and offering?

Appendix 2: Terminology and Definitions

OTT: Over The Top. In broadcasting OTT refers to the delivery of media, for example a streaming video service, over the Internet without going through a multiple-service operator such as a cable provider.

VOD: Video On Demand. VOD-systems allow users to select and watch/listen to video or audio content whenever they choose to, rather than having to watch at a specific broadcast time.

SVOD: Subscription Video On Demand. In broadcasting SVOD refers to a subscribed VOD service, such as Netflix.

MMS: ‘Mediamätning i Skandinavien’, rating service for Swedish broadcasters

CRM: Customer Retention Management

Big Data: Datasets exceeding the size that regular database software tools are able to handle

DTV: Digital Television