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**Big data analysis of Customers'
information: A case study of Swedish
Energy Company's strategic
communication**

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Abstract

Big data analysis and inbound marketing are interlinked and can play a significant role in the identification of target audience and in the production of communication content as per the needs of target audience for strategic communication campaigns. By introducing and bringing the marketing concepts of big data analysis and inbound marketing into the field of strategic communication this quantitative study attempts to fill the gap in the limited body of knowledge of strategic communication research and practice. This study has used marketing campaigns as case studies to introduce a new strategic communication model by introducing the big data analysis and inbound marketing strategy into the three staged model of strategic communication presented by Gulbrandsen, I. T., & Just, S. N. in 2016. Big data driven campaigns are used to explain the procedure of target audience selection, key concepts of big data analysis, future opportunities, practical applications of big data for strategic communication practitioners and researchers by identifying the need for more academic research and practical use of big data analysis and inbound marketing in the strategic communication area. The study shows that big data analysis has potential to contribute in the field of strategic and target oriented communication. Inbound marketing and big data analysis has been used and considered as marketing strategy but this study is an attempt to shift the attention towards its role in strategic communication so there is a need to study big data analysis and inbound marketing with an open mind without confining it with some particular fields.

Keywords: Big data analysis, strategic communication, inbound marketing

1. Introduction

Data analytics has transformed many fields with the possibility to measure and quantify complex processes to drive informed decisions. Strong. C, (2015) expressed that the modern technology enables us to measure the world in such an easy and quick way that wouldn't be imagined before. Web 2.0, digital media and the online technologies has made it possible for humans to measure and collect big amounts of data to understand the platform users in a better way. Cukier K. et al, (2013) said that human are datafying the world by placing and converting natural phenomenon into numbers from a long time in order to analyze and measure them such as weather forecasting, mapping, censuses and so on.

Technical advancements has made this world more datafied which also facilitates surveillance and monitoring. Where datafication is raising concerns to privacy on one hand, big data analytics is reshaping and improving many fields such as marketing, health, banking on the other hand. Data analytics has the potential to transform many other fields such as strategic communication. Strategic communicators are spending millions of dollars in their communication activities which are planned and executed following the traditional strategic communication models. Those models lack real-time evaluations, content tweaking, personalization and customization of communication messages to target desired audience at individual level. Whereas big data analytics and inbound marketing has the potential to transform the strategic communication processes as they have transformed marketing, sales and many other fields.

The advent of information technology has not only datafied the physical realms but also the human behaviors but Colin (2015) believes that we still have not considered the inferences of human behavior's data that has plentiful implications. The online platforms are generating a lot of data about the online behaviors of their users that is of huge importance for businesses and organization to make informed decisions in targeted communication. For communicators, marketers and businesses the most important and common task is to find their right target audiences, know their psychographics (such as beliefs, interests) and demographics (such as age, gender, location) to target them with exact information they are looking for.

Patrutiu, L. (2016) shared the research results collected by Bigshot Inbound, that 86% people skip TV advertisements and 46% of direct emails remained unopened, 84% of youth (25-34

year old internet users) have stopped using their preferred websites just because of irrelevant advertisements. Such results show that targeting general audience randomly with a hope that they will get attracted towards your message, product or service is very costly and no more effective. It demands for the identification of desired target audience in advance in order to survive and compete with others. As Han J. et al, (2012) said in their book that "the world is data rich but information poor" (*p.* 5). That's only because many of the communication strategies are not big data driven and we still have not given proper attention to the big data analysis that it deserves in our communication strategies. Previous studies (Markus et. al, 2017; Hence, Holtzhausen & Zerfass, 2015) shows a wide gap between the perceived importance of big data and limited use of benefits and opportunities in the strategic communication field. As Wiesenberg, M., et. al. (2017) said that "the full potential of big data analytics…. has not been leveraged until now, which calls for new initiatives in the practice and further research" (*p.* 95). They further mentioned the need of competence, knowledge, experience and solution for ethical issues in order to bring big data analysis into the field of strategic communication.

In this era of technology almost all big companies are digitally present mainly through websites and social media pages. Their daily interactions with the online website visitors, readers, and users are generating huge data sets about the relevant and interested audience groups. As Strong. C, (2015) mentioned in his book that

> "Hall Varian, Chief Economist at Google (cited in Smolan and Erwitt 2012), estimates that humankind now produces the same amount of data in any two days than in all of history prior to 2030. There is simply no shortage of data." (Strong. C, 2015, *p.* 3)

This data can be converted into information about their target audience groups who are already interested in the company and to identify new target groups with similar psychographics and demographics as existing customers. But as Han J. et al, (2012) called this world "data rich and information poor", many companies are still not making smart use of big data of their target audiences' online behaviors and still collecting customers' data through surveys, emails, trade shows and then targeting them through tv, radio and newspaper ads, direct emails, phone calls and other traditional means of communication campaigns which are eating big budgets with low success rate.

Sarah Quinton and Paul Fennemore (2012) research study about online social networks and marketing talked about the need for organizations to digitalize their communication and marketing strategies following the fast adoption of internet and social media by customers. The fast growth and popularity of social networking sites among people moved businesses and brands towards digital transformation.

Big data analysis is not only helping in the identification of desired target audience but also facilitating communicators, brand and marketing teams to prepare audience oriented (customized and personalized) communication content following inbound marketing strategy. Inbound marketing is a digitalized method of end user or receiver oriented communication where communicator discovers its potential audience or customers through blogs, websites, podcasts, eBooks, search engine optimization, cookies, and social media marketing (Soegoto, E. S., & Simbolon, T., 2018). Big data analysis and inbound marketing is enabling brands to reach their desired audience groups with lower budget and more personalized content. Inbound marketing enables companies to interact with their desired audience or potential customers through target oriented content and engage them to continue their interaction with the company to finally lead them towards buying their products and services.

The trend of using big data analysis in marketing specially in audience oriented marketing communication has recently started professionally but in the practical field of strategic communication this trend is still not in use. The debate about considering data analytics in strategic communication recently started but there is still not enough academic research work around big data analysis and inbound marketing in strategic communication field. Earlier research work mainly focused on the technological aspects of big data in marketing oriented studies with least focus on the role of big data analysis in devising communication strategy and how big data driven real-time evaluations can improve the communication processes over time. Additionally, most of the previous researchers studied big data analysis only in identifying the right target customers from sales perspective by ignoring the role of big data driven (post campaign) evaluations on the success rate of future campaigns, its impact on budget and the combination of inbound marketing with big data analysis in strategic communication. As Holtzhausen and Zerfass (2013) defined, "Strategic communication is the practice of deliberate and purposive communication that a communication agent enacts in the public sphere on behalf of a communicative entity to reach set goals" (p. 74). So it can be said that strategic communication mostly follows the basic principles of marketing to achieve

the set goals through communication activity so inbound marketing has strong relevance with the strategic communication processes. So there is a need to study the role of big data analysis of online human behaviors which is changing the very nature of communication and strategic communication and to explain that how big data analysis is used in making communication related informed decisions.

For the case study, two (business to consumer) marketing campaigns of Swedish state owned energy company Vattenfall AB's[1] were selected. Both campaigns used big data analysis and inbound marketing strategy for micro-segmentation of desired target audience, production of personalized communication content and for pre, post and real-time evaluations of campaigns. In data analysis both campaigns were compared to see the importance of evaluating big data driven campaigns' results in order to make informed decisions for future campaigns and to explain the impact of big data analysis and inbound marketing on customer centric content. The chosen energy company has changed its marketing strategy from outbound to inbound in 2015 using Google Analytics 360 and recently it has started focusing more on audience's big data sets for targeted communication on internet and social media to attract the desired audience. In this research big data analysis and inbound marketing will be the main objects of interest to understand the process of digitalization of audience oriented external communication by Swedish energy sector. Company's marketing teams are still looking for better solutions to practice inbound marketing and data analytics to improve their marketing strategies.

1.1 Purpose of the Study

The aim of this study is to introduce big data analysis (for the identification of desired target audience, audience oriented communication content, and continuous tweaking of content with the help of real time analysis) and a marketing concept namely inbound marketing (used for audience oriented communication content marketing) as new features in the strategic communication model and process. Secondly, by comparing two campaigns of similar

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[1] According to Vattenfall AB's website, it is Europe's largest electricity and heat producer and retailer. Vattenfall AB is over 100 years old Swedish state owned European energy utility and distribution company with major business roles in Sweden, Germany, Netherlands, UK, Finland, France, Norway and Denmark with approximately 20,000 employees all over Europe. Vattenfall is one of the big players in Europe when it comes to hydro power, nuclear power, wind power, electricity and the electrification of heavy industries.

(https://group.vattenfall.com/)

product launched at different time this study is showing the impact of evaluating big data driven campaigns before, after and during the on-going communication process on the performance of future campaigns. It contributes to the limited body of academic knowledge of strategic communication by explaining different steps of big data analysis such as data collection, data mining, micro-segmentation to target audience, inbound marketing for audience oriented messages and the importance to evaluate campaigns before, after and during the communication process with big data analysis. Apart from this all, it will not only focus on the role of big data in identifying the desired target audience but also in targeting and re-targeting them with engaging and attractive communication content which is inbound marketing, impact on campaigns' budget, leads and conversion rate.

1.2 Research question:

- What role is big data driven micro-segmentation of audience and inbound marketing playing in audience oriented communication campaigns in terms of targeting the desired online audience?

    (a) Is big data driven micro-segmentation and inbound marketing enabling the organizations to identify and communicate with their desired target audience?

- Does big data driven campaigns' pre, post and real time evaluation improves the success rate of communication process overtime?

1.3 Rationale to select Vattenfall

In past there were few communication related research studies about Swedish state owned company Vattenfall but they were majorly conducted by external researchers and most of them worked on communications and corporate social responsibility or specific crisis issue but during this study being a part of selected company's communication team, I got the chance to analyze their communication campaigns and the usage of big data analysis to bring out an internal perspective. At the time of study I was working with a different team so my role in the selected campaigns was of an observer. So the main reason behind the selection of Vattenfall as a case study was that I was able to access the data, contact campaign managers to learn about their experiences and analyze their marketing and communication strategies. Other than that, Swedish state owned company is also focusing a lot on the digitalization of their ways of working, communicating, and customer interactions. They also re-branded in

2018 by changing their logo, introducing a new purpose of being fossil free with in one generation and by adopting pro-active communication strategy.

1.4 Limitations of the study

Due to the limited time and to meet the study deadline this study can't include more campaigns into the comparison. I started my thesis work with a focus on a different campaigns but due to some delays in launching I had to select two other campaigns, out of them one (November-December, 2018) was already finished (offline) when I selected it so I was unable to observe the performance of big data analysis and inbound marketing in real-time. I have only observed the second campaign's (March-April, 2019) activities in real time. One other limitation is that this study only focused on the campaigns handled and measured through Google Analytics 360 tool[2]. There are many other digital platforms which are also serving the same purpose such as Hubspot[3]. It could be more interesting if both campaigns were compared on the basis of online platforms handling and optimizing the big data analysis and inbound marketing such as comparing the performance of a communication campaign running through Google analytics 360 with a campaign handled using Hubspot. This comparison can add more knowledge about the performance and abilities of different online analytical tools in collecting and categorizing data to communicate with the desired target audience groups. But due to the time limitation such comparison was not possible. Considering privacy and market competition, campaign managers asked to not reveal the product/service name and the budget amount so the budget is only compared with the difference of percentage.

1.5 Definitions of Key concepts as defined by Doyle, C. (2016) in "*A dictionary of marketing (4 ed.)*"

Following key concepts are also defined later in the study where they are used to resolve the confusion (mostly in the analysis chapter).

- **B2C (business to consumer):** "A term referring to a business that sells products or provides services to the end-user consumers or audiences."

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[2]**Google Analytics 360:** "The Google Analytics 360 Suite is a set of integrated data-and-marketing analysis products that are designed specifically for marketers who operate at the enterprise level. This suite of products lets you analyze consumer behavior, develop relevant insights, and then provide a more engaging brand experience." (https://support.google.com/marketingplatform/answer/6292532?hl=en)

[3] **HubSpot:** "HubSpot is inbound marketing, sales, and service software that helps companies attract visitors, convert leads, and close customers. " They define inbound communication by saying "Don't interrupt buyers, attract them." (https://www.hubspot.com/what-is-hubspot)

- **Conversion:** "Users who have spent more time on the website page and clicked on many links within the website to get more detailed information about the campaign and purchased the product are counted into conversions."

- **Customer Journey:** "The process that a prospect goes through to become a buying customer, from initial awareness to interest, to consideration, to purchase, to preference, then loyalty to a given brand. This process is often rendered as a journey detailed on a map."

- **CPC (Cost Per Click):** "The measurement of online advertising costs on a pay-per-click basis (although in loose usage these terms are often used synonymously)."

- **CTR (Click Through Rate):** "The percentage of those who see an online link who then click on it. The **ad request click-through rate** refers to the proportion of visitors to a webpage clicking on a specific ad link. The CTR for an ad which is seen 5,000 times and receives 25 clicks is 0.5 per cent."

- **Impression:** "A single instance of an online content or advertisement being displayed."

- **Lead:** "A potential customer who has been identified as being interested in a product or service. Leads will typically be converted into actual sales."

- **Programmatic Display:** "An array of technologies that automates the buying, placement, and optimization of media. It replaces traditional agency media buying methods. In this process, supply and demand partners use automated systems and business rules to place advertisements in electronically targeted media properties." It is basically automated bidding in real time to select the target audience to show the planned communication content or ads of the campaign in order to get conversions (new buyers)."

- **SEM (Search Engine Marketing)**: "Purchasing ads on search engines in order to increase website traffic." While searching on google mostly one can see SEM ads on the first pages some website links relevant to the keywords shown in the top results with a small tab of Ad on them.

- **Website traffic:** "The total amount of visitors that a website receives over a given time period. This metric was initially viewed as the most important way of determining the success of a particular website or e-commerce business. Website traffic is only partly a determinant of profitability, but it is no longer a major independent metric. It is nowadays typically combined with a visitor conversion metric to determine actual sales."

1.6 Thesis Disposition

This thesis consists upon seven chapters. First chapter is introducing the focus area, research questions and purpose of this study by mentioning the problem and need to introduce big data analysis and inbound marketing in the research and practice of strategic communication). Definitions of study's key concepts are also presented in the first chapter. The second chapter of this study is presenting an broad overview of the previous literature around big data analysis and inbound communication and their weak connection with strategic communication and identifies the knowledge gap and the need for more academic research. The third chapter is presenting traditional models of strategic communication and pointing out the gaps in them that can be filled by adding big data analysis, real time evaluation and inbound marketing into strategic communication model. Fourth chapter is describing the research method and sample/case for this study. This chapter also explains the process of datafication by sharing information about big data collection and data mining to transform unstructured data into valuable knowledge. Methodology chapter also share information about the research ethics that were followed during the study. The next and fifth chapter of this study is presenting results and data analysis. Data is analysed in two different parts in relevance with the study's research questions. In first part of data analysis data of both selected campaigns are compared with each other to see the impact of big data driven evaluations on future campaigns whereas in the second part of data analysis categories of different target audience groups are compared with each other to explain the nature of big data micro-segmentation in detail. Results are presented numerically through charts and tables. In the sixth chapter (Discussion) an expanded strategic communication model is presented by adding big data analysis and inbound marketing into the selected model of strategic communication. Last chapter is conclusion chapter where overall study results are discussed in relation with research questions and theoretical framework. Future agenda, societal impact and scope of this study is also presented in the seventh and last chapter.

2. Literature Review

This chapter is presenting an overview of previous research work in strategic communication, big data analysis, inbound marketing, micro-segmentation of desired target audience, customer journey and pull vs push communication strategies.

2.1 Strategic communication

Strategic communication is defined as biased and professionally pre-planned mass communication (Sweldens, Van Osselaer and Janiszewski, 2010). Hallahhan et. al, (2007) defined Strategic Communication as a process of planning and development of targeted communication activities in order to achieve organization's mission. Smulowitz, S. (2015) defined strategic communication as a "distinct approach focusing on the process of communication which offers complimentary insights and open up new fields for interdisciplinary research" (p. 3). He explained the strategic communication process as a communication process that follow organizational strategy with a focus on the role of communication in achieving organizational strategic goals.

In this context we can relate content creation using inbound marketing concept for the known and targeted audience as a process of strategic communication since big data analysis is enabling organizations to collect user identities, their demographics, and psychographics and consent through IP address and cookies to identify the right target audience. So after knowing their audience/ potential customers, organizations are devising strategies for more targeted and interactive communication.

Academic research around using big data analysis to make informed decision has recently stepped into the field of strategic communication (Weiner & Kochhar, 2016). A large part of previous academic research work on big data analysis has focused on technical and computational aspects of big data analysis in marketing. There is limited knowledge about the impact of evaluating and using results of big data driven campaigns to predict and control upcoming campaigns.

This area just freshly started developing in relations to academic research. Weiner and Kochhar (2016) further explained that the research and academic discussions about big data recently started about how it is collected, what are the sources of big data, and how it is helping in making informed decisions in relation to strategic communication. Markus et. al,

(2017) discussed the automation of strategic communication due to the big data analysis. They informed the communication practitioners with the challenges and benefits of big data by saying that big data have potential to bring dramatic changes to their jobs. They further descried that big data analysis and artificial intelligence can replace humans at work in the field of strategic communication with automation of processes.

Loebbecke and Picot (2015) said the same about automation in strategic communication as

"digitization and big data analytics (. . .) impact employment amongst knowledge workers—just as automation did for manufacturing workers" (Loebbecke and Picot, 2015, p. 149).

2.2 Big data analysis

Earlier researchers defined big data analysis more as a mathematical process to make sense out of data and those definitions were formed due to its large size and problems with storing it in the computer disks. Cox and Ellsworth (1997) firstly used the big data as a term to explain their problem that "data sets do not fit in main memory (in core), or when they do not fit even on local disk" (p. 235) Further researchers defined big data from the management approach such as Laney (2001) defined big data with a focus on (3V's) data volume, velocity, and variety. Lately these 3V's as big data's definition become largely accepted as Volume refers to large amount of data, velocity represents real-time streams and data motions, and variety elaborates the multi-faced nature of big data such as structured, semi-structured, or unstructured. Further on Gandomi & Haider (2015) criticized the big data methodologies and analytics and explaining the need for a structured methodology to handle big data. They added a fourth V of Veracity in big data's definition by explaining uncertainty and inadequate reliability of big data being heterogeneous, noisy and huge in size. And this new definition is widely accepted currently by many researchers in the area. In an extensive study on different Big data sets in order to identify common attributes of Big data Rob Kitchin and Gavin McArdle (2016) discovered that most common traits of big data are exhaustivity (it means that big data read and consider whole system than selecting small samples, so for big data n= whole population) and velocity (real time processing). Crawford and boyd

Mark Lycett (2013) called big data analysis as a process of sense-making driven by information technology. Other researchers work related big data analytics with digital communication technologies and datafication (Boyd & Crawford, 2012; van Dijck, 2014).

Boyd et.al, (2012) explained the process of utilizing big data analysis in the digital age by saying that more and more companies have realized that the abundance of real time data derived by information technology systems has the potential to present a knowledge base to understand current performance and to anticipate future. Stemming from this perspective, Big Data research actually give structure to online or offline information collected in abundance in the form of mathematical numbers to get a detailed picture of psychographics and demographics of people (audience), companies, places, and topics. Mayer and Cukier (2013) called this whole transformation process of data collection, generating knowledge system, and coding them into machine readable formats to discover patterns through data mining as big data analysis. The knowledge base derived from the process of dbig data analysis helps in development of communication strategies for inbound communication.

A large part of the academic work on big data (Banasiewicz, 2013; Couldry & Turow, 2014; Erevelles, Fukawa, & Swayne, 2016; Fulgoni, 2014; Micu et al., 2011; Tirunillai & Tellis, 2014) highlighted key concepts, identified opportunities and applications in the field of marketing. Many of them explained that by using big data analysis, companies can micro-target the customers and can co-create products and information which resulted in a more successful brand, product or communication and eventually generate more sales (Banasiewicz, 2013; Couldry & Turow, 2014; Erevelles, Fukawa, & Swayne, 2016; Fulgoni, 2014; Micu et al., 2011; Tirunillai & Tellis, 2014). Many other scholars focused on the opportunities of using big data and sensors to evaluate, measure, and control communication on social media and online platforms (Campbell, Pitt, Parent, & Berthon, 2011; Netzer, Feldman, Goldenberg, & Fresko, 2012; Rogers & Sexton, 2012). But their work mostly focused on the technical aspects of using big data. Wiesenberg, M., and others (2017) in their empirical study of big data analysis and strategic communication, finds out that there is a wide gap between perceived value and current practices. They mentioned that the lack of competence, knowledge, experience and some ethical issues are restricting the practitioners of strategic communication to use big data analytics. They further called for the need to explore the potential of Big data in many other research fields and dimensions. Van den Driest et al., (2016) also called the gaps on the individual, organizational, and professional level as a main hindrance between deploying Big data analytics in strategic communication.

Kitchin. R, (2014) discussed the commonly accepted definition of big data consisting upon 3V's as huge in volume, high in velocity and diverse in variety, he further called big data as

exhaustive in scope, fine-grained in resolution, relational in nature, and flexible. Here one cannot deny the role of big data in making informed decision being information rich and accurate. Mayer et.al, (2013) said that "Data is the oil of the information economy" (*p.* 16).

David (2016) in his book "The New Rules of Sales and Service" defined big data analysis as,

> "No matter if you call it rich data or big data, the concept involves using very large data sets and powerful analytics to generate real-time information that is valuable for making decisions." (*p.* 52)

He further said that the term and idea of using big data analysis was advocated by an American statistician and writer Nate Silver, who analyzed 2008 U.S. presidential elections using big data analysis and succeeded in predicting the outcomes of 49/50 American states. Many scholars have different views about the purpose of using big data. For some it is mainly to anticipate and to pro-act accordingly while for others big data analysis is to measure and react. Strong. C, (2015) said that big data agenda is "less about trying to 'predict and control' and more about 'measure and react' strategies." (p. 198)

Using big data analysis brings many challenges and opportunities for the organizations. As Markus et. al, (2017) said that big data can change the jobs of communication practitioners in a dramatic way with the automation of strategic communication but big data research alone is also full of challenges. The literature review showed that some barriers are hindering the competitive advantages of big data specially the lack of competence in understanding the analytical part of handling big data. Big data being huge in size, unstructured, full of variety, and complex in nature demands smart handling to turn its complexities into valuable knowledge. And this process is known as big data analysis.

> "….the exploitation of raw data in many different contexts—can be seen as an attempt to tackle complexity and reduce uncertainty. Accordingly promising are the prospects for innovative applications to gain new insights and valuable knowledge in a variety of domains..." (Strauß, S. 2015, *p.* 836)

Lycett. M, (2013) called datafication as a lens needed to "….. turn data into something of value" (*p.* 382). He defined datafication as a three step process in the light of Normann

innovative concepts of value creation of 2001, namely dematerialization, liquification, and density. Lycett explained dematerialization as the ability of dataification process to separate the informational aspects of big data sets and liquification is the second step after dematerialization to manipulate the collected information to place them into closely linked groups for communication and he called density as the "best (re)combination of resources, mobilized for a particular context, at a given time and place – it is the outcome of the value creation process." *(p.382)*

Collecting audience's psychographics and demographics data is not a new thing for communicators, marketers and brand teams but this behavioral data used to be collected through surveys, focus groups, audience interviews and other traditional data collection tools and such practices are still on-going. These traditional methods can still work for collecting demographic data but many researchers believe that unlike data collected from surveys, focused groups, interviews, laboratory and field observations online data which is collected under un-controlled conditions is more reliable and authentic about human behaviors.

Strong. C, (2015) explained that real time data has the potential to provide more accurate responses of audience as compared to the data collected retrospectively with more chances of less accurate information coming from respondents recalling their past activities.

> He further said that "Big data analysis means we can see exactly when each activity has taken place and, where relevant, with whom and what was communicated. Survey data is still important but we are starting to see that it has a new role in the era of big data." (*p.* 10)

Other researchers also believe that customers' online data is more authentic than customers' responses gathered by surveys and focus group studies. Morabito, V. (2015) differentiate social media data from surveys by saying that via online data collection, companies can collect spontaneous and response bias free information about their customers whereas one cannot avoid such biased results in data collected from surveys or in focus group methodology. The comparison of survey or other similar research methods with dataification is same as comparing human brain with machines.

Strong. C, (2015) replaced the focus from web 2.0 towards Big data in Scott Golder and Michael Macy's research "the web sees everything and forget nothing". Strong said that "the

data sees everything and forget nothing" (*p.* 09). Strong. C, (2015) further compared Big Data research method with sampling and called Big Data more time consuming and costly process but he also defended Big Data or datafication being giving unbiased results and profitable knowledge but he concluded it by saying that its less about avoiding the biases and more about deciding that which bias researcher is willing to accept and which not and this makes objectivity illusionary. Strong. C, (2015) raises some questions around preferring big data instead of sampling by saying that Big Data is somehow objective and comes with unquestionable reliability. Mayer and Cukier (2015) said that big data analysis is beneficial for offering more freedom to explore, more in-depth details in a number of directions, and for uncovering new connections that would remain hidden with smaller samples.

Morabito. V, (2015) elaborates more the upsides of big data such as:

> "Big data can change the way companies identify and relate to their customer base. Undoubtedly, companies can boost the old marketing strategies using new big data tools and expertise. Market penetration strategies can leverage big data to feed marketers information on how to keep existing customers and improve repetitive sales." (p. 30)

Strong.C, (2015) developed a deeper understanding about big data analysis and its impact on consumer insight. He explained that due to the increase in online activity by customer, cookies are tracking each and every move and creating data to support companies. Morabito, V. (2015) in his book "Big Data and Analytics" said that big data or datafication is enabling companies to identify and relate to their customers more effectively than before and can multiply the impact of their old marketing strategies by knowing their customers' online behaviors. Big data driven communication is considered more efficient in targeting the right audience.

Marr, B. (2016) talked about big data driven campaigns that
> "there was no margin for error and every cent would have to be spent efficiently." (*p.* 104)

This all shows the importance of big data in the identification of right target groups for communication. David (2006) said in his book that big data is used mainly in sales and

customer oriented communication to analyze website traffic, clicks, and social media streams and search engine optimized word in real time. He further explained that by collecting and analyzing this invaluable big data, companies get clear and more accurate understanding of their existing and potential customers' motivations and can also predict their future needs.

2.3 Inbound Marketing

Big data analysis helps in distinguishing different target audience groups as per their needs and then in the creation of targeted communication content to fulfil their needs through inbound marketing. Inbound marketing is making it possible for businesses to achieve the customer centricity in digital content communication. Unlike outbound marketing where companies directly ask target audience to buy a product or service inbound marketing mainly market the content to attract customer to push it towards purchasing it (Patrutiu-Baltes, 2016). Inbound marketing is a digital way of business promotion through content marketing on websites, blogs, podcasts, eBooks, videos, SEO, and social media advertisements to attract customers as per their stages in the customer journey (Halligan, 2009). The idea behind inbound marketing is to produce marketing/communication content in a way that pull, engage, attract people by sharing relevant, useful and helpful content (Halligan, B., & Shah, D. 2014, *p.* 3).

2.3.1 Pull vs. Push Media Strategies

The terminologies of pull and push strategies are not new in the field of strategic communication but these terminologies are differently perceived by strategic communicators from the way marketers are using Pull and Push strategies with inbound and outbound marketing techniques. Traditional way of communication (especially in marketing and strategic communication) is more like pushing messages towards a general audience on media such as TV, newspapers, radio, internet, and magazines, mail campaigns, and face-to-face on site. This strategy is known as Push media as stakeholders/ audience are not looking for the communication content in advance and exposure to such information might annoy them being uninterested and pushed towards something irrelevant to them whereas in Pull media strategy audience/stakeholders are already knowledgeable and seeking for the relevant information communicated through the campaign (Hagel and Brown, 2011).

Earlier researcher, Corniani, M. (2006) presented these marketing concepts in the same manner as pull and push media concepts of strategic communication. She defined outbound marketing as push communication and inbound marketing as pull communication.

"In push marketing[4] the company promotes a message and communicates it by 'pushing' it along a channel to an audience that is usually not directly interested in it (passive interest), whereas in the case of pull marketing[5], the communication flow is actually requested by the market. So the market takes action to acquire the information flow (business communication), and thus has a precise interest in it (active interest)." (Corniani, M., 2006, p. 52)

2.3.2 Pull media strategy vs. Inbound marketing

Researchers in strategic communication has used the terms of push and pull media strategies with a more focus on the media as a platform and prior knowledge of stakeholders to choose the media for display without giving required importance to online platforms and communication content. In marketing some advanced terms are used to define the push and pull strategies which are Outbound marketing and Inbound marketing respectively but marketers are using these strategies in a different way.

Opreana and Vinerean (2015) said that outbound marketing has lost its effectiveness due to being costly and more general approach as compared to inbound marketing which they called more targeted, engaged and interactive for a customer plus less costly for the company. They further explained the process of digital inbound marketing as a procedure of creating organic and search engine optimized content to reach and to convert qualified consumer into a long term loyalty.

The focus area in this study are inbound marketing and pull media strategy. The understanding about pull media strategy in strategic communication is to target the specific sub-groups of stakeholders with prior knowledge about the product/ service with a media mix which includes newspapers, social media, radio, personalized emails or face-to-face briefing session (Gulbrandsen, I. T., & Just, S. N., 2016, *p.* 220). On the other hand, inbound marketing concept is the next level of pull media strategy. In marketing, first they pull the

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[4] **Push marketing:** *A promotional activity designed to sell products to retailers and wholesalers, encouraging them to stock up on the products, and promote to prospective consumers anticipating demand.* (Doyle, C. 2016)

[5] **Pull marketing:** *A branch of promotional activity designed to build up consumer demand by aiming advertising strategically at the prospective target customer, who then demands the product or service from intermediaries such as retailers and wholesalers, who then meet the demand via supply from the original company.* (Doyle, C. 2016)

customer through Search engine optimization (SEO) towards the company's website, product or service through pull marketing and inbound marketing is the second step after pulling the customer. Inbound marketing is basically content marketing in the form of blogs, videos, e-books, whitepapers, social media marketing and newsletters to attract and engage the already interested and knowledgeable audience in buying the product or service. Z Lin C O Y, and Yazdanifard R (2014) defined Inbound marketing as a marketing methodology of creating and sharing content on online and digital platforms with an aim to get discovered by the targeted audience through the shared content. In inbound marketing message approach is more audience/receiver centric. So instead of producing general content, targeted content is produced for specific audience, on specific online channels, and published according to the audience' online behavior. Inbound marketing focuses mainly on the audience centric content and digital platforms.

> "The practice of promoting products and services in an innovative way, using primarily database-driven distribution channels to reach consumers and customers in a timely, relevant personal and cost-effective manner is known in the theory and practice as digital marketing". (Wsi, 2013, *p*. 7)

Inbound marketing is a very effective way to reach the desired audience by getting found on different online platforms through search engines and sites like Facebook, YouTube, Twitter-sites that hundreds of millions of people used to find their answers each day. (Halligan, B., & Shah, D. 2014, *p*. xiv).

Concept of inbound marketing is majorly used in sales and owned by marketing but the base of this concept is closely connected with strategic communications (Pull media) as many of the strategic communication processes follows the same basic principles as marketing. There is a lack in the scholarly strategic communication research that inbound marketing can fill by adopting and calling it inbound communication to focus on the content, digital platforms and data driven decision making. The concept of audience oriented and targeted communication was derived from strategic communication. Term of "strategic" was initially used in 1950's in Organizational theory to explain the organizations' communication strategies to increase market share and their profits. (Hatch 1997; Argenti 2005; Bütschi 2006; Hallahan et. al., 2007).

2.4 Micro-segmentation of desired audience

Offsey (2014) shared that big data analysis enables companies to target each and every customer individually based on their preferences and buying habit by collecting users personal information such as online behaviors, browsing data, purchase histories, physical location, demographics (memberships, work history) and psychographics (social influence and sentiment data). Big data analysis allows companies to observe past, real-time and step by step behaviors of desired audience to target them with customized and personalized communication content. Such micro-segmentation leads towards fine targeting with audience oriented content (inbound marketing) and increase the success rate of a campaign.

2.5 Customer journey

In academic research on marketing, the terminology of customer journey is used to link customers' experience with a company and its products and services. Kankainen et al. (2012) defined customer journey as "the process of experiencing through different touch points from the customer's point of view" (p. 221). Asbjørn et al. (2018) in their research paper reviewed the terminology of customers journey in the academic literature and explained that this term is used as a path, process, and a set of sequence through which a customer use a product or service. Lee (2010) called it as online decision journey which starts with customers first interact with the company's online media and takes it towards the online purchase. It's a journey from a potential curious customer who is searching online platforms to get the best offers towards selecting and buying the product/ service. Stone and Liyanearachchi (2007) called different phases of customer journey as life-cycle stages of pre-acquisition, welcoming, maturity, and renewal.

2.6 Micro-segmentation vs. customer journey

Big data driven micro-segmentation of desired audience allows the communicators to target users at individual level (as mentioned above in section 2.4). So in a big data driven campaign, communicators can micro-target individuals with personalized communication content which is more targeted communication as compared to dividing and targeting the audience into the categories of customer journey.

2.7 Big data ethics and privacy issues

There is a huge debate around ethical and privacy issues related to big data. Some practitioners and scholars called it Big data era, as selling big data of online users after

collecting it from different sources is a big market now. Generally, before selling big data to other companies, data collectors or sellers uncouple the surnames, first name, sometimes remove age and addresses but some critiques such as Buhl, et. al, (2013) work on privacy and ethical issues of Big data said that "In a Big Data era with many different data from different sources, privacy and anonymity means more than just uncoupling surname, first name, age, and address from a dataset. Location-based data and other sources still allow for easy and clear identification and tracking." (*p.* 67) But it is a separate debate and can be considered as a topic for future research as this debate is still ongoing.

Firstly the literature reviewed showed that there is a need for more academic work around big data analysis and inbound marketing in the realm of strategic communication. And this is not possible without understanding the role of big data analysis in marketing and sales oriented communication as most research and practical work is done in those fields. By creating an understanding about the role of big data analysis and inbound marketing in the selection of desired target audience and communication content in marketing campaigns, one can think about using the same procedures in strategic communication. So we cannot ignore and by-pass sales and marketing communication research from strategic communication research to develop a better ground for understanding big data analytics.

3. Theoretical framework

For theoretical construction this study has used the three stage strategic communication plan presented by Gulbrandsen, I. T., & Just, S. N. (2016) as a base. The three stage strategic communication plan is derived from Tibbie's planning model (1997). British communications consultant Tibbie presented six steps of planning and executing a strategic communication campaign as parts of a cycle as presented in image 3.1.
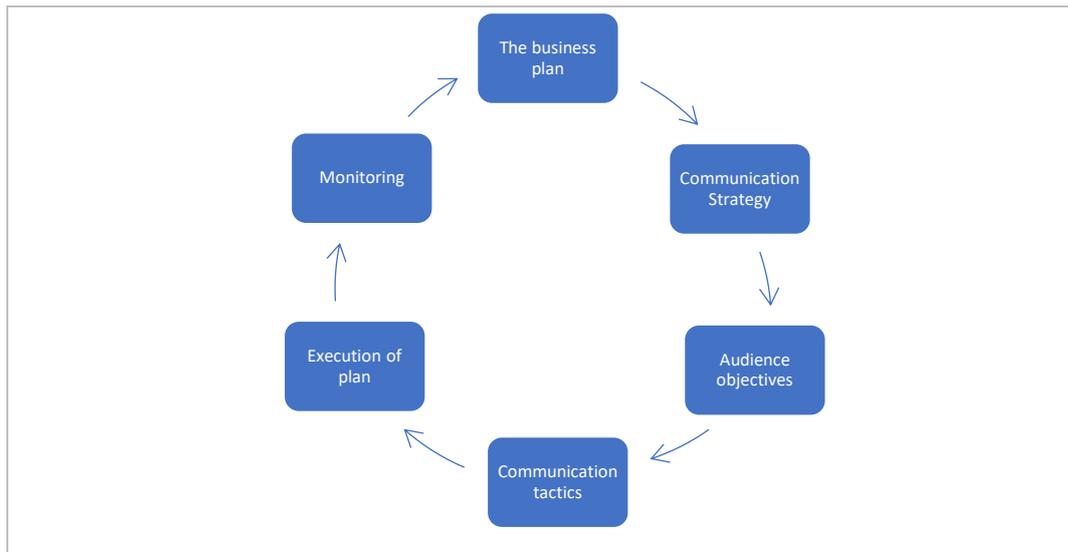
Image 3.1: Tibble's Planning Model

Tibbie's planning model is a circular and continuous process where the business plan consists upon SWOT analysis (strength, weaknesses, opportunities threats) to find out the position of the organization as compared to the competitors, future goals or desired position and plan to achieve that desired position. In communication strategy, Tibbie (1997) presented four steps of planning cycle in terms of audiences and communication objectives namely 1)Audience segmentation, 2) existing values, 3) role of communications and 4)positioning statement. He also included evaluation into the planning cycle with a focus on research and development. But Gulbrandsen, I. T., & Just, S. N. (2016) criticized the Tibbie's planning model for being supporting "a recursive and reflexive process of learning, rather than a straight path to goal realization that one embarks upon without looking back" (*p.* 109). Gulbrandsen, I. T., & Just, S. N. (2016) derived a new strategic communication model by taking inspiration from Tibbie's planning model and divided it into three main steps such as 1) analyse, 2) plan and 3) execute as shown in image 3.2 below.
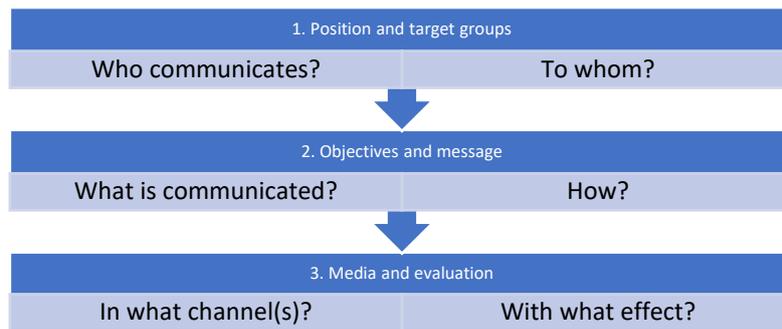
Image 3.2: A three-stage communication plan (presented by Gulbrandsen, I. T., & Just, S. N., 2016, p. 110)

Position and target groups stands for analysing the position of the communicator or the organization planning the communication process. Position is described as "the desired audience image of an organization" (Gulbrandsen, I. T., & Just, S. N., 2016, p.111) and target groups are the audience or receiver of the communication content. They stressed upon analyzing the desired and perceived position of the organization in relation to the competitors in order to devise an strategy to communicate effectively with the target audience. For the selection of target audience groups strategic communicators discussed the need to collect demographic (age, gender) and psychographic (lifestyle, personality, interests, social class) data to target the desired audience (Gulbrandsen, I. T., & Just, S. N., 2016) but they did not considered big data analysis for the collection of such data rather selection is mostly done on the basis of surveys, samples and field observations.

Objectives and message stands at the planning stage in the strategic communication model after identifying the organization's desired position and desired target audience. They suggested that objective of communication and message both must be aligned to ensure that the message is received by the target audience with its desired objectives. To explain this stage further Gulbrandsen, I. T., & Just, S. N. (2016) divided it into three parts as shown in image 3.3 below.

Image 3.3: Objectives, core message, form and content.

They suggested to start the planning stage by 1) setting communication objectives to attain the desired position, reach and effecti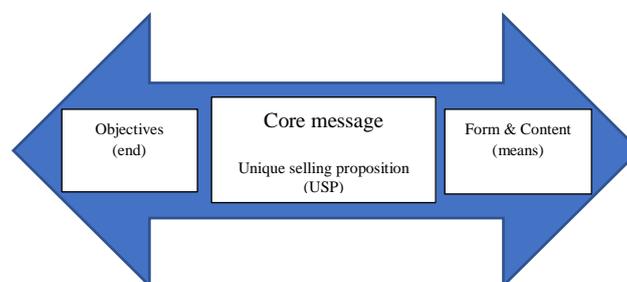veness of communication and 2) "its specific formal and substantial means"(*p.* 117) and 3) selecting a core message with unique selling proposition (USP)[6] or emotional selling proposition (ESP)[7] to establish a distinct position desired by the organization.

The third and last step of this model is about the selection of **Media** as platform (online, offline) and creative elements such as images, videos, taglines as so on as communication content and **evaluation** is linked to ways to measure and evaluate the effects of communication. Both researchers suggested a right mix of media (online and offline) as they said "that without the right media mix any strategic communication effort is bound to fail" (*p.* 126). Secondly they stressed on the need of having right means to evaluate the performance as without right evaluation means communicators cannot get any idea of whether the communication campaign was successful, what performed best and how.

Gregory (2001) criticized that in practice many communicators ignore to evaluate the performance of their communication campaigns either it is hard to evaluate or the evaluation tools are not connected with the actual communication process. Gulbrandsen, I. T., & Just, S. N. (2016) also criticized the traditional models of strategic communication which suggests pre and posts tests to measure the campaign objectives and they suggested the need to evaluate the actual process of communication.

After presenting this three stage model of strategic communication, Gulbrandsen, I. T., & Just, S. N. (2016) asked for the need of "unpacking the black box of the communication process…… we cannot get any closer while remaining within models of strategic communication that are premised upon the transmission paradigm….. our journey with and within this paradigm must end here" (*p.* 125)

This study has used the above presented three staged model of strategic communication plan as a base to analyse the potential of big data analysis and to introduce inbound marketing

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[6] **Unique Selling Proposition** defined by Rosser Reeves (1961) as a concrete, unique, durable and powerful proposition to convince and attract the target audience.

[7] **Emotional Selling proposition** invokes certain feelings as per the set communication objectives. (Gulbrandsen, I. T., & Just, S. N., 2016, p.119)

strategy into strategic communication practice. By analysing and studying two big data driven marketing campaigns, the main aim of this study is to propose to enter the big data analysis and inbound marketing strategy as inbound communication into the three staged strategic communication model.

4. Methodology

4.1 Description of the research method(s)

This research is a case based quantitative analysis of two marketing campaigns with an aim to evaluate the performance of Big data analysis and inbound communication to bridge the gap between marketing and strategic communication practices. This study is aimed to measure the potential of big data analysis in the identification of desired target audience (with micro-segmentation) and inbound marketing by comparing the performance of both data driven campaigns. Wimmer and Dominick (2006) defined quantitative research as a method that measure the variables under consideration and use numbers to communicate about the results. They defined variable as "the empirical counterpart of a construct or concept used to link the empirical world with the theoretical" (Wimmer & Dominick, 2006, *p.* 47).

Main focus of this empirical study is Big data and the frequency of occurrence of different variables (impressions on content, website traffic, conversions, leads and so on). Jensen, K.B. (Ed.). (2013) said that in quantitative research numbers are used to measure variables which are basically concepts and constructs. He further says that quantitative research is basically used for cause-effect relationships. And the purpose of this study is also to demonstrate the cause-effect relationship of using big data and the success rate in achieving customer oriented communication goals. To study this cause-effect relationship and to analyse the performance of big data analysis over time, data of two business to customer (B2C) communication campaigns of the selected energy company is collected and compared numerically and described in a qualitative way. The goals and main targets of both selected campaigns were same as both were about same product and service so their desired target audience was also same. Main reason to select two different campaigns of same product/service was to measure and see the impact of evaluating and using the insights of one big data driven campaign on the performance of future campaign. As the second campaign (2019's) was planned after evaluating the first campaign's (2018's) performance.

Firstly in this methodology chapter the overall process of big data analysis is explained in general (as in academic literature) and then more specific information is shared about the step by step process of big data analysis of the selected campaigns (on the basis of informal interviews, meetings and researcher's interaction with the campaign managers). First part is explaining that how big data analysis turn huge heterogenous data sets into information based and organized categories. Information collected through the informal interviews, meetings

and telephonic conversations with the B2C team and campaign managers is presented later in the second part to explain the process of big data collection, analysis, segmentation of target audience, retargeting, real-time decisions, tweaking and adjustments made into audience sets and communication content.

4.2 Selected Campaigns:

As a case study Swedish state owned energy company Vattenfall AB's two awareness and marketing campaigns were selected. Both campaigns were of same product and service and were launched at different time periods. Due to market competition and company's strategic privacy the name of product and service is not disclosed in the thesis. Previous researchers compared many different big data driven campaigns of different products launched and operated by different organizations in order to identify the nature of big data (Rob Kitchin and Gavin McArdle, 2016) but in this study both selected campaigns are of same product and service and launched and managed by same organization. Main objective of both campaigns was to spread awareness about the selected product and service among villa owners, electric vehicle owners and people living in accommodations (BRFs) in Sweden and to drive leads to company's home page. According to Vattenfall's product based official website, the campaigned product/service offers different smart solutions in a widely spread network. Goals and desired target audience of both selected campaigns were same.

Main reason to select two different campaigns of same product/service was to measure and see the impact of big data driven results and evaluation with the passage of time. As the second campaign was planned after evaluating the first campaigns performance so the comparison of both campaigns can show the importance of evaluation and considering big data driven results in planning future agendas. In order to study the impact of using previous results of Big data driven campaigns for the planning of upcoming campaigns to see how big data evaluation can change campaign's performance over time, selection of both campaigns was made on the basis of difference of timing (first campaign was live in Q4 of 2018 and the second campaign was live during Q1 of 2019). First campaign lasted for eight weeks, started on 7th of November, 2018 and ended by 31st of December, 2018 and the second campaign was longer than the previous one but I selected eight weeks data to compare in order to balance the time duration. Seconds campaign was launched on 2nd of January, 2019 and ended by the end of first week of April,2019 but the selected data is taken from 11th of February to 7th of April.

Throughout this study, first campaign is mostly mentioned as 2018's campaign and second campaign is mentioned as 2019's campaign.

Both campaigns used social media, search engine marketing (SEM), programmatic display to share online videos, online ads and images to spread awareness about the product and solution. Automated data was collected from Google analytics 360 and results are interpreted and analyzed using descriptive statistics. Learning from informal interviews of campaign managers about the content tweaking and real-time evaluations are added later under 4.9.3. The success rate of Big data and inbound marketing driven campaigns was judged on the basis of difference in number of impressions, website traffic, leads, conversions and budget (cost per conversion) as described in the table below in relation to the study's research questions

Variables	Description and Purpose
Impressions: ("A single instance of an online content or advertisement being displayed.")	Number of impressions on campaigns' communication content were measured in order to find the answer of first research question of this study. Higher number of impressions will show that big data analysis and inbound marketing strategy has the tendency to identify and communicate with the desired target audience and vice versa. A comparison of number of impressions during both campaigns will show the value of evaluating and considering results of previous campaigns in future planning (second research question).
Website Traffic: ("The total amount of visitors that a website receives over a given time period.")	Visitors on company's website during the selected campaigns were measured in order to see the impact of using big data analysis and inbound marketing techniques to find the answer of first research question of this study. High rate of website traffic will show that big data analysis and inbound marketing strategy has the tendency to identify, attract and engage the desired target audience with audience oriented content and vice versa. A comparison of website traffic during both campaigns will show the value

	of evaluating and considering results of previous campaigns in future planning (second research question).
Leads: ("A potential customer who has been identified as being interested in a product or service. Leads will typically be converted into actual sales.")	Number of leads were also calculated in order to see the impact of big data analysis, inbound marketing strategy with the identification of desired targets, tailored communication and real time tweaking in relevance to study's research questions and a comparison of number of leads of both campaigns will show the impact of using big data driven results.
Conversions: ("Users who have spent more time on the website page and clicked on many links within the website to get more detailed information about the campaign and purchased the product are counted into conversions.")	Similar to number of leads, conversions were also considered as study variables to see the role of big data analysis, inbound marketing and pre, posts and real time evaluation of campaigns' performance.
Budget: (Money spent in the advertisement and marketing of campaign.)	Budget was also counted as a variable to study the impact of evaluating big data driven campaigns to identify the desired target audience and inbound marketing to communicate with audience centric communication content instead of broader and general audience groups in heavy budget campaigns.

Table 4.1 Describing the study variables (as defined by Doyle, C. (2016) in "*A dictionary of marketing (4 ed.)")*and their relevance with the research questions.

Both campaigns used inbound marketing technique so (instead of directly asking the general audience to purchase the product) their target was to spread awareness and to increase the interest of relevant audience in the product with the help of engaging online content to attract them to buy it. Here it is also important to mention that though both campaigns were marketing campaigns but both were aim to spread awareness about the product/service through inbound marketing such as website articles, social media content and search engine

keywords instead of directly asking the target audience to buy the product like traditional advertisements. In order to bring the concepts and processes of big data analysis and inbound marketing into strategic communication, this study investigated the role of big data analysis and inbound marketing in audience oriented communication in terms of targeting the desired online audience and success rate in achieving the communication objectives.

I have been working with the social media team and video competence group of Vattenfall AB during my research work. Both campaigns were handled by the marketing and brand team so my role was just of an observer and researcher with reading access to Google Analytics 360 account to observe the on-going campaign and to collect data for this research study. I conducted some informal interviews during the meetings with the marketing team and external agency who was handling the campaigns and big data analysis in order to understand the whole process of collecting and analyzing big data, using inbound marketing strategy for content production and to learn about the real-time changes they made in the communication content and target audience sets during the ongoing campaigns. Before selecting these case studies and during the research work I was aware of the potential biases being an employee of the same company but as I was not part of the marketing team so my relation with that team was not more than a researcher/observer. There was no influence and pressure from the marketing team in my research work. I worked as an independent researcher without any influence of being an employee of the company.

4.3 Google Analytics 360

Both selected campaigns used Google analytics 360 to collect real time data and evaluate the performance of on-going campaigns' content. Google analytics 360 is an advanced and paid analytical tool launched and rebranded by Google analytics in March, 2016 to analyze big data sets (Alhlou, F., Asif, S., & Fettman, E., 2016) and to handle inbound marketing content. Google analytics standard service is a free tool but with some limitation to handle big data in real time and in contrast Google Analytics 360 offers twelve times fresher data. Google analytics standard service can take up to 24 hours in providing data reports but Google Analytics 360 gives guarantee to provide data reports in four hours, it also provides analytics of entire datasets to its users. This tool provides service level agreements, support and guarantees at least 99.9% data collection. It can also manage BigQuery (BigQuery is Google's big data analytics platform) data (Alhlou, F., Asif, S., & Fettman, E., 2016). In contrast to some newly introduced big data management tools who claim to provide insights and

actionable data, Google analytics provides results based on only data and numbers. Google analytics 360 provides multiple options to collect automatically generated data where user can select data as per the need. Main limitation of this software is that it only provides data as numerical numbers and some competitors are claiming to provide insights that can provide more focused instructions and guidelines to make informed decisions. Secondly it provides data reports with a delay of four hours which is fine in most of the cases by sometimes more quick reporting is required specially when heavy budgets are involved.

4.4 Communication content of both campaigns

First awareness campaign about the selected product/service started by Vattenfall AB on 7th November, 2018 for eight weeks. Communication content was online video, social and online display. On social media four videos and six linked posts were published to drive traffic towards product's website. Real time data of first campaign showed that fifteen seconds long Instagram vertical (9x16) video performed best in meeting the set KPI (key performance index) and followed by square (1x1) image link posts on Facebook. The second campaign's data range from 11th February - 7th of April, 2019. Target audience of both campaigns were villa owners and people living in BRFs in Sweden. Communication content was shared on social media and search engine ads. Second campaign's content included eight static banners of programmatic ads for the general awareness about the campaigned product/service which were placed on different websites and online platforms, two videos and one image ad on Facebook and Instagram in Swedish, and fifteen search engine marketing text ads on different search engines to drive the traffic towards the product/service website. Programmatic content of both selected campaigns consisted upon online video display about the product and online ads that were placed on different websites and online platforms.

4.5 Big data analysis

Although the main purpose of this study is to see and compare the performance of both campaigns but we cannot ignore the process of Big data analysis that marketing team did before starting the both campaigns in order to identify and categories target audience as per their needs and stages in the customer journey to prepare communication content accordingly.

4.6 Data sets

Three kinds of data sets are usually collected before the launch of any big data driven communication/marketing campaigns. These data sets are known as first party data, second

party data and third party data. **First party data** is considered most valuable being authentic and accurate as it is gathered directly by the organization itself from their audiences' online activities, behaviors, actions, subscriptions, cookies, surveys, feedback and database. So first party data is similar to primary research data. Hox J. et al, (2005) defined primary data as "original data collected for a specific research goal." So here in inbound marketing specific goal of first party's data collection is to develop a customer data base for targeted communication for different stage of audience groups in customer journey. **Second party data** is some other organization's first party data and it can be purchased directly from the data collector in a private data market. Hox J. et al, (2005) defined secondary data as "data originally collected for a different purpose than the study at hand", whereas **third party data** is basically purchased from outside sources who are not the original data collectors. Many companies are financially relying on selling their customers' data to complement their revenues. Those collector aggregate data from different sources and then categories it on the basis of industries, interests, genders, age group, geographical location, buying powers and so on. Selling customer data is a main revenue generating business for many companies. According to the campaign managers, first party data is most valuable as it provides more accurate information about existing and interested customers as compared to second and third party data.

4.7 Big data feedback loop

Feinleib, D. (2014) shared the concept of big data feedback loop in order to act on data. He divided this process into three steps (i)Test, (ii) Analyze and (iii) Act, (see image 4.1 below) where in the testing stage, companies test their communication strategies by targeting current and potential customers with communication and marketing campaigns and then in next step they collect and analyze big data to drive conclusions and to get feedback for future actions and upcoming communication strategies.
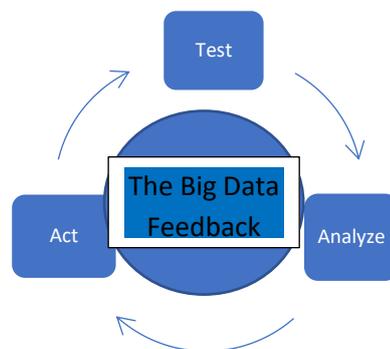
4.1 David Feinleib's (2014) big data Feedback loop

In both selected campaigns, at first stage campaign organizers tested their communication content by targeting it towards the selected audience and analysed the results in real time to drive conclusions and with analyzing the performance of communication content some content was fine-tuned further, some of the content was removed (on the basis of low performance) and the messages with high engagement were spread further. The whole process of big data analysis, collection of audience data sets for the selected campaigns is explained further under section 4.9 (Big data analysis of Vattenfall's selected campaigns).

Before starting a new campaign, customer data from previous campaigns and from other sources is collected mainly in three sets 1) Primary source data, 2)secondary source data and 3)third party data (as explained above) and then target audience is categorized and placed into micro-segments on the basis of their online behavior that can easily be seen with big data analysis of their demographics, psychographics, time spent in reading/viewing online content, clicking on links for further details around a specific product/service on website and online search keywords. For instance, big data analysis can show the location, gender, age, preferred language, interests, daily usage of internet any many other details that can help communicator in advance.

4.8 Data Mining

Han J et al, (2012) has presented data mining as a step in the process of driving knowledge out of raw data as show in the figure 4.2 taken from their book.

> They defined data mining as "an essential process where intelligent methods are applied to extract data patterns……… Data mining is the process of discovering interesting patterns and knowledge from large amounts of data. The data sources can include databases, data warehouses, the Web, other information repositories, or data that are streamed into the system dynamically." (*P*.8)

Berry MJ (2004) defined data mining as "…..the exploration and analysis of large quantities of data in order to discover meaningful patterns and rules."(*p*. 7)
 It means that data mining can improve the understanding about target audience for communicators and about customers for marketers.
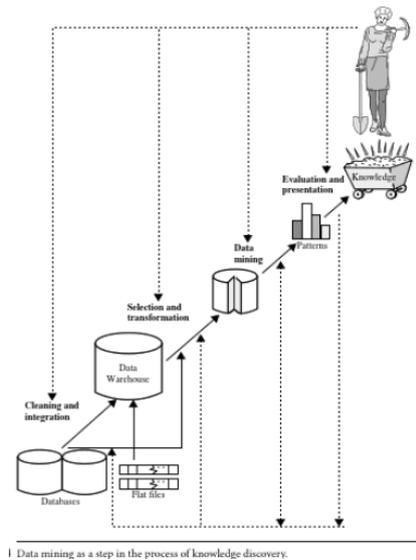
Figure 4.2 from Han J et al, (2012) book "Data Mining: Concepts and techniques"

Strong, C. (2015) asked for the need to consider the best way to apply sampling to big data analytics instead of considering big data as n = all paradigm. Strong, C. (2015) said that researchers need to identify their territory, eliminate biases where one can and understand them when one cannot get biases away. So through data mining firstly, only the relevant profiles of online audience (high value target audience groups) were selected and divided into different categories for customer oriented communication and the audience which was not at all or least interested in buying the product/service or was irrelevant (on the basis of last campaigns' results) was not considered as target group.

I started this research work in 2018 with a focus on an inbound marketing online tool Hubspot, by selecting Vattenfall's business to business (B2B) marketing campaigns because it was the first time for Swedish state owned company to use this new tool of inbound marketing and big data analysis. That campaign was made-up to target potential B2B customers in Finland and Sweden and firstly was supposed to launch in January, 2019 but it was delayed until March 2019 due to some marketing and policy related issues and later it was again postponed until April 2019. In order to move on to meet the study deadlines, I had to change my focus area from B2B to B2C and from HubSpot to Google Analytics 360 to study the impact of big data analysis and inbound marketing in communication campaigns to see their potential in strategic communication. Then instead of analyzing only one campaign, I decided to analyze and compare two communication campaigns about same product/service to study the role of evaluating and using insights of one campaign to plan and execute next campaign in order to see the importance of evaluating campaigns to optimize results.

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4.9 Big data analysis of Vattenfall's selected campaigns

On the basis of informal interviews of selected campaigns' managers the overall process of big data collection and transformation into information to drive knowledge based decisions is described in the following part of this chapter. During the research work I met campaign manager for an informal interview about the overall campaign strategy, targets and their decisions. I was also in contact with the external agency through emails and phone conversations who collected data sets and organized the audience segmentation, conducted the big data analysis, and did the pre, post and real-time evaluation. That agency was also involved in the content creation and publication for inbound marketing. Through informal interviews, meetings, email and telephonic communication I learnt about the ways they collected audience data sets, did data mining, content marketing and tweaking in real time to improve the performance of campaigns' content. Apart from Google Analytics 360 read only access, the external agency and internal marketing team shared their weekly, monthly and full campaigns performance reports with me. But the data in those reports were similar to what I can collect from Google Analytics 360 so I have not mention those reports earlier. I am not sharing their (campaign managers) identities as it is not relevant and needed so I have only used the informal interviews data, our conversations and my communication with them as a way to present the whole process of big data analysis of selected campaigns.

4.9.1 Data Sets of both selected campaigns

For both selected campaigns first party data includes the website traffic of Vattenfall's official website and product pages, customers online and offline database such as audiences' online activities, behaviors, actions, subscriptions, cookies, surveys and feedback. The secondary data was purchased from different companies selling or offering relevant products/services in Sweden such as data of electric vehicle owners. Vattenfall's B2C team also purchased third party data of audience with similar interests and demographics as the previous customers (online users with similar interests, geographical location, economy class, and age groups product customers) from the data selling companies and big data suppliers in Sweden.

4.9.2 Selected campaigns and Big data feedback loop

Vattenfall's B2C campaigns also followed the same feedback loop of (i)Test, (ii) Analyze and (iii) Act as described by Feinleib (2014). Vattenfall's campaigns targeted several thousand people within Sweden. Campaigns managers collected big data sets of potential audience groups from their previous campaigns, customers and website visitors during the last three

months (before starting the next campaign) which was primary data and they prepared the communication and marketing content such as images, videos, keywords, and website articles. After the data collection and content production they tested their campaigns by targeting the communication content towards the selected audience groups and then they analysed the performance of content and reaction from target audience in the real time through Google analytics 360 and after completing the whole campaign and then in the third and last stage of feedback loop (Act) they made informed decisions for future and specially for the next campaign on the basis of previous campaign's performance.

4.9.3 Real time evaluation and content tweaking

As Google Analytics 360 provides data reports in four hours, some content tweaking was done during the on-going campaign. Some of the content was removed on the basis of low audience interaction and some of the content was also modified during the campaigns. Some of the previously interested audience was retargeted with some more detailed information about the product/service and retargeting resulted in a high conversion rate and website traffic. In the beginning of both campaigns, campaign managers tested different communication content on different platforms to optimize the material that performs the best. For instance in 2018's campaign on social media, a fifteen seconds video clip showed best results across campaigns traffic in Insta-stories so they also used it in the 2019's campaign. Another learning was that square format (1080x1080) static image ad on Facebook performed better with higher reach/ impressions than landscape image ad (1920x1080) and the reason behind was majority of target audience was using social media on their mobile phones and both vertical (Insta story video) and square format are more mobile friendly. Secondly, for inbound marketing content instead of relying on tradition customer journey step by step process, they used big data analysis to test, adjust and optimize content towards the users online behavior, time of the day (when maximum users are active), geographical location to minimize the waste of budget and to maximize the chances of conversions.

After ending the first campaign, its results were collected to make informed decision for the next campaign. Evaluation of 2018's campaign data enabled the campaign managers to identify the desired target audience with detailed information about their demographics (such as age, gender, location) and psychographics (such as online behaviors, beliefs, liking/disliking) and to find out the best performing communication content. Such information

enabled the campaign managers to select those audience groups who were more interested in buying the product and also use the similar communication content that was more engaging.

4.9.4 **Data Mining and audiences' micro-segmentation**

After the collection of big data, target groups were categorized into different sub sets/territories as per customers' stages in the customer journey and irrelevant data was removed using data mining techniques. Vattenfall's B2C team used the information gathered during previous campaigns' big data to retarget the previously interested audience and to make new target groups similar in demographics and psychographics as the ones who were most active in reading/viewing the content and purchased the product/service during first campaign. For both of the selected B2C campaigns about the specific product, Vattenfall team used first party data to create lookalike segments to target new audience with the help of google similarity function. First party data helped in finding the similar demographics, psychographics and communication content that convinced the previous customers to buy the products and services. So with data mining different sets of lookalikes were created ranging from 1%, 1-4%, and 4-10% lookalikes. These percentages explained as: the lower the percentage is, the more accurate lookalike data will be and higher the chances of getting new conversions. So 1% lookalike means that the set of target audience has exactly same attributes as the customer in first party data whereas 1-4% lookalike means that target audience has similarities in between one to four percent with primary data customers. It also means that the lower percentage and the accurate lookalike means that the narrow and more exact audience can be targeted which also saves the budget instead of targeting many other people with lesser interest in buying the product or service. Apart from lookalike groups, targeted audience was also place in the categories of villa owners and retargeting groups. And categorization was also done of the big data collected from second and third parties.

4.10 Data Collection

For this research study both Vattenfall's business to consumer (B2C) campaigns' data was collected from Google Analytics 360. Collected data was in numerical form and includes total budget, number of impressions, leads, website traffic, total conversions (buyers), conversion rate and click through rates (CTR).

As mentioned above that I had to change the case study from B2B campaign towards B2C campaign during February so I was not able to observe the first campaign (Nov-Dec 2018) in

real-time so I just collected the information from campaign managers and relevant data from Google Analytics 360 afterwards. But during the second campaign I was able to observe the campaign in real time. Throughout the campaigns I met and communicated the campaign managers and external agency who was managing the big data sets and overall campaign related decisions to learn about the changes they made before, during and after the campaigns.

4.11 Research Ethics

Following the code of conduct and ethical guidelines for researchers by Swedish Research Council's report "Good research Practice" (2017) and UNESCO's recommendations for research (2019) the anonymity, professional secrecy, integrity of research enterprise and online users is maintained in this study. As mentioned earlier that during the research work I was working within the communication department of Vattenfall AB with social media team and video competence group. Both selected campaigns were managed and launched by different teams (marketing and brand team) from mine and my role in the study was just of an observer and researcher. So Keeping the ethical consideration of Act (SFS 2003:460) concerning the Ethical Review of Research Involving Humans and GDPR in mind all the personal, demographic, and psychographic data of Vattenfall customers is not revealed and research is conducted in a competent and objective manner without any biases. As discussed earlier in the literature review part that due to the ongoing discussion around Big data ethical and privacy issues, big data analytics needs more attention and is still under-developed. Considering specifically ethics related to Big data research, Catherine F. Brooks (2018) published an article in Scientific American and asked for the need of new guidelines for scholars in the area. She mentioned that data management through cloud computing is completely different from consent based surveys.

5. Results and Data Analysis

Data analysis and interpretation of collected data is divided into two main focus areas to find answers for the study's both research questions accordingly. In the first part of data analysis, data of both campaigns (2018 and 2019) is compared to find the answer of second research question (Does evaluation of big data analytics improves campaigns' performance over time?). To see the role of big data analytics and inbound communication in audience oriented communication[8] (first research question) the second part of data analysis has analyzed and interpreted performance of different variables of big data analysis and inbound marketing within one campaign without comparing it over time.

5.1 Difference in Big Data driven campaigns' performance overtime with the help of evaluation

In this part both campaigns are compared with each other on the basis of difference in campaign's conversion rate (number of new buyers), website traffic (website visitors), performance of search engine marketing, budget, social media and programmatic content, and the completion of set goals in order to describe the impact of evaluating and using results of Big data driven campaigns to adjust and optimize for next campaign. The main purpose to focus on evaluation of big data drive campaigns is to align it into strategic communication model.

5.1.1 Website Traffic

Doyle, C. (2016) defined website traffic as total number of website visitors during a defined time period. 2018's campaign targeted larger number of audience thus there were more first time visitors of Vattenfall's website than the 2019's campaign. As chart 5.1 shows that during 2018's campaign 97% of all company's website visitors were new users whereas there were 91% new website visitors during the 2019's campaign. This data was collected by using Google Analytics 360 and the software collected it through website cookies and the IP address of website visitors.

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[8] **Audience oriented information:** Communication content personalised as per the needs of target audience.

Chart 5.1 Showing the difference in new visitors on Vattenfall's website during the campaigns

5.1.2 Conversion rate

Doyle, C. (2016) defined conversion as an online user who have spent more time on the website and clicked on many links to read and watch the campaign messages and purchase the marketed product. Even though the 2018's campaign targeted larger number of audience as compared to the 2019's campaign but the overall conversion rate of 2019's campaign (0.15%) was higher than 2018's campaign (0.09%) as shown in table 5.1 below. The difference of conversion rate shows that more people from targeted audience converted themselves into customers after buying the product/service during the 2019's campaign.

	2018's Campaign	2019's Campaign
Conversion rate	0.09%	0.15%

Table 5.1 Showing the difference in conversion rate of both selected campaigns

5.1.3 Session duration

By comparing the average session duration (average time spent by users on company's website) of both campaigns, an increase in average time duration was seen during the 2019's campaign (00:01:39) as compared to the 2018's campaign (00:01:04) as shown in table 5.2 below. It means that online users spent longer time in reading or watching Vattenfall's website content about product/service during the 2019 campaign.

	2018's Campaign	2019's Campaign
Average session duration	00: 01:04	00:01:39

Table 5.2 Showing the difference in avg. session duration of both selected campaigns

5.1.4 Search Engine Marketing (SEM) Campaign

Doyle, C. (2016) defined search engine marketing content as purchased ads placed on search engines with an aim to increase the website traffic. In this part of study both campaigns are compared on the basis of budget and targeted audience size for search engine marketing (SEM) content and their performances is compared on the basis of impressions ("A single instance of an online content or advertisement being displayed") and conversion rate.

Target audience size and budget

Campaign of 2018 targeted its search engine marketing (SEM) ads towards 46% (70,614) more online users than in 2019's campaign (32,182) as shown in the chart 5.2 below. For targeting a broader audience during 2018 campaign 32% more amount in budget was spent than 2019's campaign. Evaluation of 2018's campaigns' data enabled the managers to identify their desired target audience and effective communication content more accurately thus they targeted lesser number of people (only those with high interest rate in buying the product) in 2019's campaign which reduced the budget size.
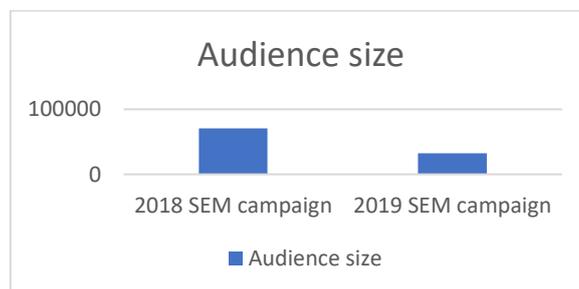
Chart 5.2 Showing the difference in targeted audience size for both campaigns

Number of impressions

So the difference was also in the number of impressions ("a single instance of an online content or advertisement being displayed" Doyle, C., 2016), conversions and the conversion rate. Interestingly the content of 2019's campaigns performed better than the 2018's campaign in many ways. As chart 5.3 is showing that the impressions on 2019 campaigns' content were 77% and the impressions on 2018 campaign's content were 74%.

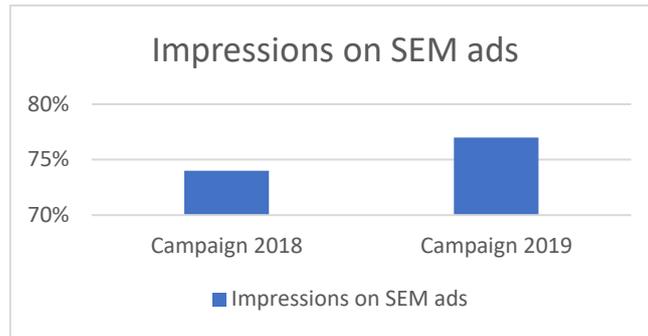Chart 5.3 Showing the difference in impressions/reach of SEM ad content for both campaigns

Conversion rate

Table 5.3 is showing the difference in the conversion rate of 2019 campaign and 2018's campaign and it can be seen that after watching SEM ads more people from the targeted audience group purchased the product/service during the 2019 campaign (1.04%) as compared to the 2018's campaign (0.72%). Results shows that the evaluation of 2018's campaign enabled the campaign managers to make informed decision in the selection of communication content and target audience for 2019's campaigns which increased the success rate of search engine marketing content with higher conversion rate in 2019.

Conversion rate derived from SEM ads	Campaign 2018	Campaign 2019
	0.72%	1.04%

Table 5.3 Showing the difference in conversion rate of both selected campaigns SEM ads

5.1.5 Budget

In marketing and sales, budget is a very important topic and they invest a lot of time in considering to deploy the budget wisely. But in strategic communication the main focus is on the performance of communication content and budget is considered after that. Still budget is a crucial element in any paid communication activity. The chart 5.4 below is showing the difference between the budget spent on both campaigns. It can be seen that 2018's campaign was way more expensive than the 2019's campaign as budget spent on second campaign was only 28% of the first campaign's budget. 2019's campaign also used 123% lower cost per lead (CPL) as compared to 2018's campaign.
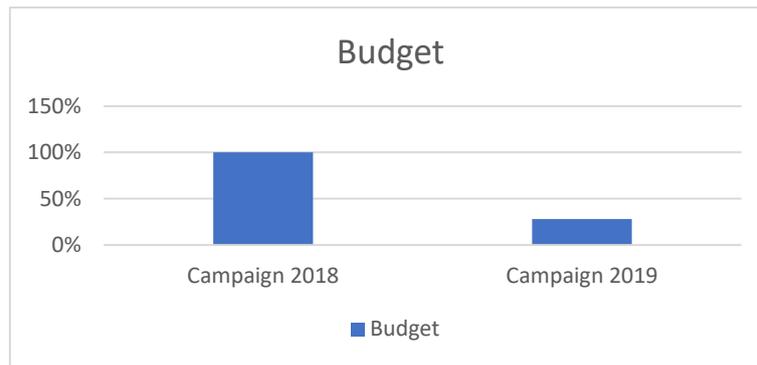
Budget

Chart 5.4 Showing the difference in budget of both selected campaigns

5.1.6 Social Media data

Communication content of both campaigns also targeted the Facebook and Instagram users through product/service images, videos and linked posts. The overall performance of both campaigns' content on social media is measured by comparing four performance variables namely impressions, leads, click through rate and cost per lead (CPL).

Impressions on Facebook and Instagram content

Chart 5.5 is showing the difference in the number of impressions both campaigns content get from the Facebook and Instagram users. In the chart it can be seen that number of impressions were higher during the 2018's campaign than in the 2019's campaign. Main reason of this huge difference is that 2018's campaign targeted larger number of online users as compared to 2019's campaign.

Impressions on social media content
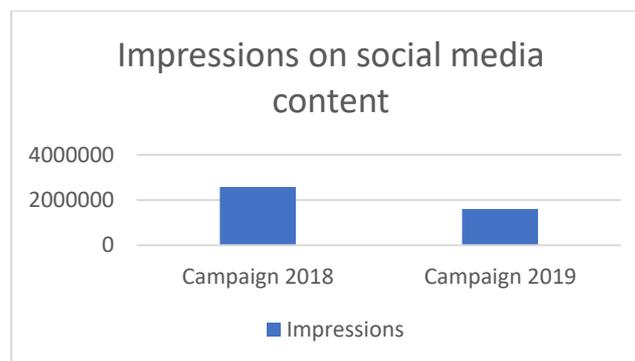
Chart 5.5 Showing the difference in impressions on social media content of both campaigns

Click through rate (CTR)

Click through rate (CTR) is the percentage of total number of views on an online link with the number of clicks on that link. Table 5.4 shows the difference in leads generated from social media content during both campaigns. Like impressions CTR of 2018's campaign was also higher (1.62%) than 2019's campaigns (0.89%). The higher CTR rate of 2018's campaign can

also be a result of targeting a larger group of online users as compared to the 2019's campaign.

CTR on social media content	2018 Campaign	2019 Campaign
1.62%	0.89%

Table 5.4 Showing the difference in CTR of both selected campaigns social media content

Leads

Doyle, C. (2016) defined lead as a potential customer who is already interested in the product or service. A potential customer who has been identified as being interested in a product or service. The most important variables to compare the success rate of both campaigns are conversions and leads. From social media content the difference in leads of both campaigns is prominent and unlike impressions and CTR, 2019's campaigns performed better in getting 21% more leads (118) as compared to 2018's campaign (93) as shown in the chart 5.6 below.
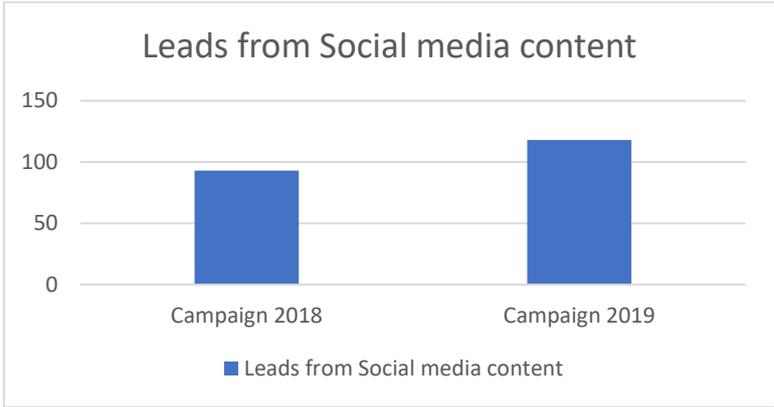
Chart 5.6 Showing the difference of leads generated from social media content of both campaigns

Cost per lead (CPL)

Cost per lead is the online advertisement cost on a pay-per-lead basis. Another important variable to compare the performance of datafication and inbound communication in both campaigns is to see the difference in cost spent on each lead which is know as cost per lead (CPL). It can be seen in chart 5.7 that CPL was less during the 2019's campaign (1,610 SEK) than the 2018's campaign (3,619 SEK). This also shows that more leads were generated during 2019's campaigns which resulted into cost reduction in the overall budget of cost per lead.

Chart 5.7 Showing the difference in CPL on social media content of both campaigns

5.1.7 Programmatic Display

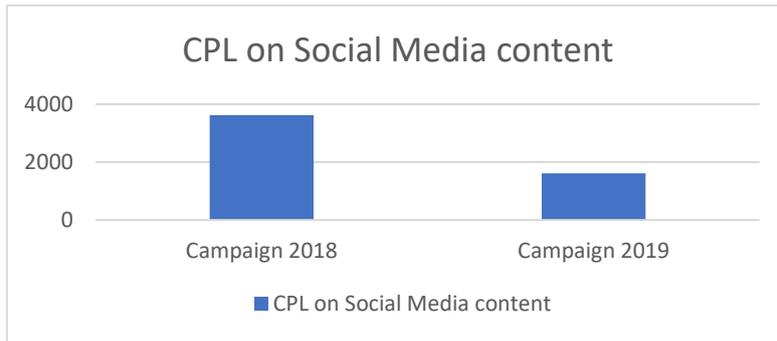As defined earlier (in the introduction chapter) programmatic display "is basically automated bidding in real time to select the target audience to show the planned communication content or ads of the campaign in order to get conversions (new buyers)" (Doyle. C, 2016). Charts 5.8, 5.9 and 5.10 below are showing the difference in the impressions, clicks and number of orders of both campaigns' programmatic display to see if there was any change in the performance of big data analysis overtime.

Impressions on Programmatic display

It is important to mention again that like social media and search engine marketing content, the programmatic display content also targeted a larger number of audience during the 2018's campaign as compared to 2019's campaign. It is also evident in the difference of impressions as can be seen in the chart 5.8 below that campaign 2018's programmatic display had double number of impressions as compared to 2019's campaign.
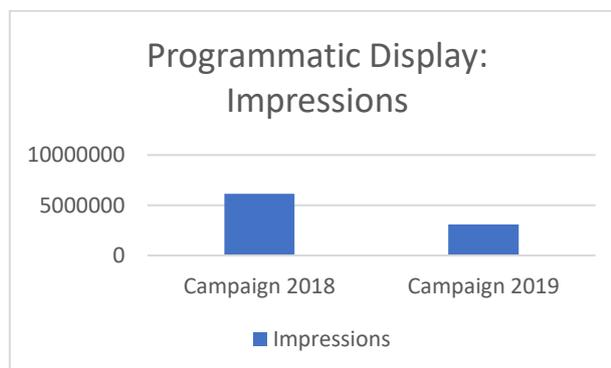

Chart 5.8 Showing the difference in impressions on Programmatic display of both campaign

Clicks on Programmatic display

Chart 5.9 is showing that there were 32% more clicks on the 2018's programmatic display as compared to 2019's campaign. This difference can also be related to the difference in the size of target audience and budget as 2018's target audience and budget size was bigger than the 2019's campaign.
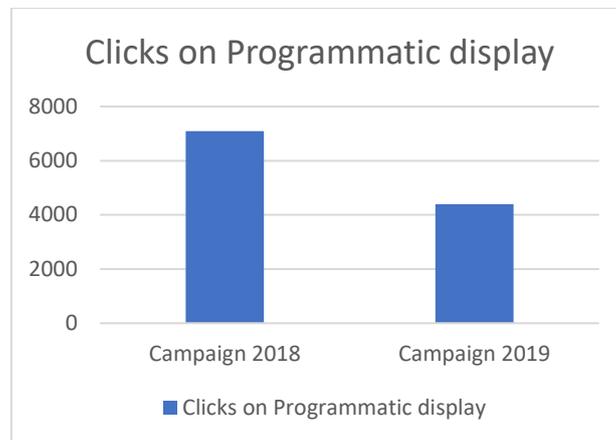
Chart 5.9 Showing the difference in clicks on Programmatic display of both campaign

Orders on Programmatic display

Unlike impressions and number of clicks on Programmatic display, the 2019's campaign data showed that there were 40% more orders for product/service as compared to 2018's campaign. As chart 5.10 is showing the difference in number of orders for both campaigns. On the basis of this difference the importance of evaluation and big data analysis can be seen to drive informed decisions. After 2018's campaign, managers were able to identify the most suitable online platforms for programmatic content display, they were also aware of the most interested groups of target audience and most engaging communication content. This feedback and insights helped them to tweak the big data and communication content to increase the number of new customers in 2019's campaign. So 2019's campaign targeted and retargeted already interested audiences (on the basis of 2018's campaign results and learnings) and their lookalikes so there was more orders and new customers as compared to 2018's campaign.
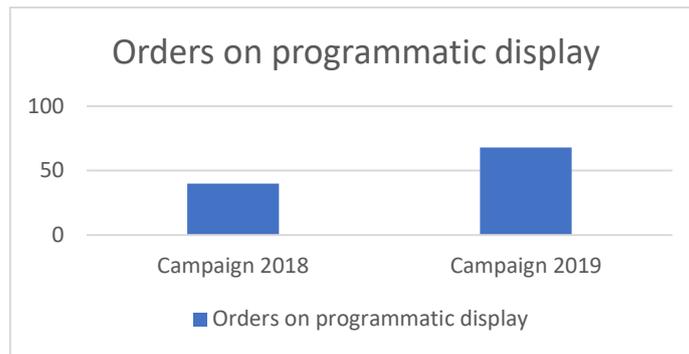
Chart 5.10 Showing the difference in orders from Programmatic display of both campaign

5.1.8 Goal Completion

Before the launch of both campaigns, company's B2C team set three main goals of converting targeted audience into the customers of three different services of the campaigned products. As product/ service's name is not disclosed in this study so the goals are given symbolic names as goal 1, goal 2, and goal 3. The collected data revealed that 2019 campaign completed higher number of goals (72, 1129 and 34 respectively) as compared to 2018's campaign (63, 686 and 0 respectively) regardless of lower number of targeted audience and budget. Chart 5.11 is showing that 2019's campaign performed better in completing all the set goals as compared to 2018's campaign.

Chart 5.11 Showing the difference in goal completion of both campaigns

5.1.9 Analysis of part one:

2019's campaign targeted 46% less number of online users and consumed 77% less budget in total as compared to 2018's campaign but the difference in the performance of programmatic display, search engine marketing (SEM), social media content and goal completion of 2019's campaign was much better than the 2018's campaign. So in answer to second research question of this study, we can say that pre, post and real time evaluation is crucial to make

informed decision. Most importantly, in big data driven campaigns, post campaign evaluation is highly important in order to find out the most interested target audience/ customer lookalikes, most engaging content, time and place to display the content and many other insights that can help in informed decision making for future campaigns. In this manner, 2019's campaign was a continuation of the 2018's campaign. The insights of 2018's campaign give a huge advantage to 2019's campaign by providing information to target and retarget the already interested website visitors (who visited the website during 2018's campaign but were not converted as a customer last time) and their lookalikes so there was 40% more orders and new customers from programmatic display as compared to 2018's campaign. Similar trend was seen in the results of goal completion data as 2019's campaign's performance rate was 40% higher than 2018's campaign. Similarly the comparison of social media content of both campaigns showed that there were 21% more leads generated during 2019's social media campaign with 60% less budget as compared to leads and budget spent during 2018's campaign. High number of impressions, website traffic and clicks on the campaigns' content shows the power of inbound marketing during both campaigns.

This part of data analysis is showing the importance of evaluation. Researchers of strategic communication criticize the practitioners either for neglecting the evaluations (Gregory, 2001) or only conducting the pre and post campaign evaluations (Gulbrandsen, I. T., & Just, S. N., 2016). On the basis of above presented data analysis, pre, post and real-time evaluation through big data analysis can be introduced to the three stage communication plan (theoretical framework). In both selected campaigns all the content was only targeted towards the interested and relevant online users instead of targeting general audience (as mostly in traditional ads and outbound communication) so targeted audience showed a great interest in the content.

5.2 Big data driven micro-segmentation and difference in the performance of target audience categories

In the selected three staged strategic communication model, Gulbrandsen, I. T., & Just, S. N., (2016) provides information about audience segmentation on the basis of demographics (such as gender and age) and psychographic data (interests, beliefs and so on) to place potential audience into manageable groups but they did not mentioned any analytical procedures to collect data. But on the other hand in the selected campaigns audience segmentation was done by big data analysis. The campaign managers of both selected campaigns, divided the target

audience into different categories or segments on the basis of their similarities with the product existing customers. Adamson et al. (2012) wrote that with the help of emerging analytics companies can identify relevant niche and subdivide the market into small groups to increase the potential and success rate of their campaigns instead of targeting in large demographic chunks.

Facebook analytics and Google analytics 360 allows micro-segmentation by finding new people with similar attributes (demographics and psychographics) of existing customers. Campaign managers created lookalike audience lists with the help of Facebook and Google AdWords remarketing. With Facebook lookalike audience they selected three Lookalike categories namely Lookalike 1% (most closest to the existing customers), Lookalike 1-4%, and Lookalike 4-10%. And retargeting (also known as remarketing) list was made using Google AdWords to show targeted content to the users who already have visited the Vattenfall's website. The purpose to compare different target audience groups is to learn about the most and least performing groups (on the basis of their similarities with the existing customers). This information can help strategic communicators to expand their knowledge about audience segmentation and the importance of retargeting the already interested audience groups.

So the second part of data analysis and interpretation focused on the potential of big data driven micro-segmentation of audience in order to target the desired audience and to introduce big data driven micro-segmentation in strategic communication model. This analysis is finding the answer of first research question (What role is big data driven micro-segmentation of audience and inbound marketing playing in receiver specific communication campaigns in terms of targeting the desired online audience? (a) Is big data driven micro-segmentation and inbound marketing enabling the organizations to identify and communicate with their desired target audience? For this purpose the performance of big data analysis, inbound marketing and big data driven different segments of targeted audience were compared to see the behavior and interaction of different audience groups with the campaigns' content.

5.2.1 Big Data and targeted audience groups

To find the most and least performing audience category, all groups were compared on the basis of number of impressions, leads, link clicks and budget. In Lookalike audience categories, Lookalike 1% was most closest to the existing customers (in demographics and

psychographics) so it performed better than lookalike 1-4% and lookalike 4-10% category in generating lead, lookalike 1% was also smaller in size as compared to other two lookalike groups (lookalike 1-4% and lookalike 4-10%) thus there was less impressions, link clicks and budget consumption (9.7%).

Targeted audience categories	Leads	Cost	Impressions	Link clicks
Lookalike 1%	8.54%	9.7%	7.4%	8.16%
Lookalike 1-4%	6.7%	14.9%	14.8%	15.9%
Lookalike 4-10%	2.4%	23.7%	23%	22.41%
Retargeting	41.25%	19.6%	12%	19.76%
Villa Owners	25.7%	68.6%	102%	78.27%

Table 5.5 Showing the difference of leads, cost, impressions and link clicks in percentage among different audience groups

Table 5.5 shows that maximum number of leads (41.25%) were generated from the retargeting group. Retargeting was done mainly during the on-going campaign with the help of real time data, after few days and after finishing 2018's campaigns to retarget users during 2019's campaign. Re-targeting audience group includes previous website visitors or online users who have already interacted with the company's online content or searching for similar keywords related to the service or product offered in the campaign. Re-targeting audience group was even more refined and closer to the desired target audience than the lookalike 1% because retargeting was done on the basis of previous interest in the company and its products. During both selected campaigns retargeting audience groups performed best in leads and conversion rate. Number of leads were followed by Villa owners' group (25.7%) being more relevant with the campaigned product. Data is showing that audience group of Lookalike 4-10% generated least number of leads (2.4%) than all other audience groups. Both campaigns' content got highest number of impressions from Villa owners' target group (102%) as villa owner target group was big in size so it consumed 75% more budget than the Lookalike 1% audience group. The conversion rate and lead of villa owners target group was also higher than all other groups except the retargeting audience group.

5.2.2 Analysis of second part:
In all selected categories of target audience during both campaigns, retargeting group performed best with highest numbers of conversions (purchasing). Audience in the retargeting

group proved to be the most closest one with the existing customers for this specific product/service as they were already interested in the product or company and were searching for it. So by placing the performance of retargeting group in Feinleib's (2014) big data Feedback loop, it can be concluded that the formation of retargeting group started after the step-2 of the feedback loop (Analyse) and then targeting that group with the most relevant communication content on most suitable online platforms was the third step (Act) of feedback loop.

Above mentioned results also showed the importance of inbound marketing as the content of the campaigned product/service was most relevant for the villa owner in Sweden so there were highest number of impressions and link clicks from that category of targeted audience and the retargeting group was also consisted upon online users who were already interested in the company and its product. Similarly Lookalike 1% audience group generated more leads as compared to lookalike 1-4% and lookalike 4-10% groups because lookalike 1% group was more closer in similarities with the existing customers of the product as compared to the other two lookalike groups. It also adds value to what Opreana and Vinerean (2015) had already said that inbound marketing is a more targeted, engaged less costly and interactive way of communicating with desired audience. Bringing back the three stage strategic communication model, selecting audience with the help big data driven micro-segmentation can improve the performance of campaign with more engaging audience as compared to selecting audience through traditional ways of data selection (survey, questionnaires and so on). Similarly, at the second stage of strategic communication model (what is communicated) the addition of inbound marketing (target oriented communication) can improve the quality and engagement rate of communication content instead of communicating in a general and less targeted manner.

6. Discussion

Strategic communication follows the same basic principles as marketing so there is a need to bridge the gap between both fields by introducing marketing strategies into the strategic communication. The data analysis of selected campaigns shows that like marketers, strategic communicator can also use big data analysis for the selection of desired target audience, to optimize and predict results with the help of informed decisions and inbound marketing strategy to produce targeted communication content.

6.1 Expansion of three staged strategic communication Plan

On the basis of data analysis and study's results, Gulbrandsen, I. T., & Just, S. N., (2016) three stage strategic communication model can be expanded by introducing big data driven micro-segmentation of target audience at first stage, inbound marketing strategy at second stage and big data driven pre, post and real-time evaluation at the third stage to improve the performance of strategic communication campaigns and to optimize results and to save budget. An expansion of the selected strategic communication model (as theoretical framework for this study) can be seen in the image 6.1 below.
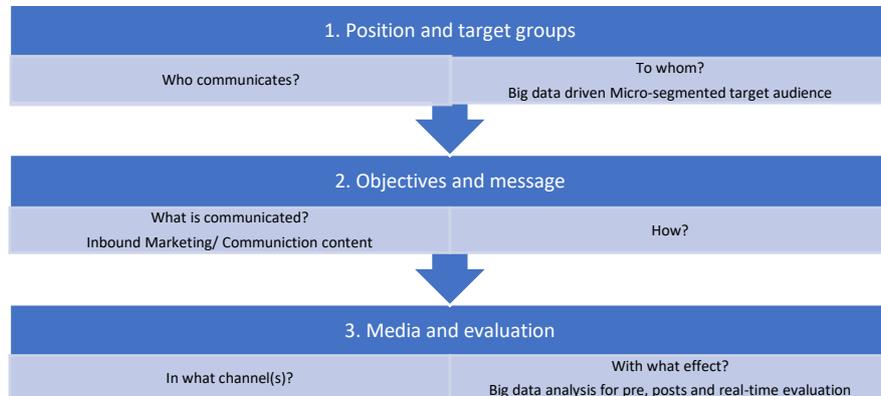
Image 6.1: An expanded three-stage strategic communication model

At the first and third stage of above mentioned strategic communication model big data analysis (while identifying the target audience in first stage and for evaluating the overall performance of campaigns at third stage) can be used instead of relying on survey, focus groups and field observations data for the identification of targeted audience and similarly for the evaluation of campaign big data analysis has the potential of providing real time, accurate, objective and unbiased results. Secondly this communication model will also be used as a base to introduce inbound marketing strategy into strategic communication process at second

stage to produce audience oriented communication content. In the above mentioned model at position and target groups stage, who communicates will remain same as it's the company but target groups needs to be selected by big data analysis instead of selecting through survey, interview or other forms of manual data collection. At second stage of strategic communication model, objectives and message (what is communicated and how) needs to be changed by introducing the concept of inbound marketing to produce audience oriented communication content as per the needs of target audience to achieve the set communication goals. Third and last stage of this model needs to be changed by selecting media with the help of big data analysis to place the inbound communication content at right platforms (websites, social media, traditional media where the desired target audience is) and at suitable time (when the desired target audience is actively using that platform) in the right format (square shaped 1080x1080 content (videos and images) for mobile users and landscape format 1920x1080 for desktop and tab users), secondly the evaluation at third stage needs to be conducted at all stages from the selection of desired target audience, to test communication content and to evaluate the overall performance before, after and during the campaign to adjust it as per the demands of communication goals.

Strategic communication follows the same basic principles as marketing so there is a need to bridge the gap between both fields by introducing marketing strategies into the strategic communication. I strongly encourage academicians and practitioners of strategic communication to adopt inbound marketing strategy from marketing studies and present it in communication-costume by naming it inbound communication. As inbound marketing strategy is search engine optimized, more influential, targeted and cost-efficient as compared to strategic communication strategies which are loosely targeted, mostly unpredictable and costly.

Secondly, I suggest to use big data analysis in strategic communication campaigns to select desired audience at individual level (micro-segmentation) to target the most closest individuals with the existing customers instead of selecting the target audience at broader level such as through surveys, interviews, focus groups, and field observation data.

On one hand strategic communicators are either neglecting to evaluate their communication process or just focusing on pre and post campaign tests to measure the performance of campaigns' objectives (Gulbrandsen, I. T., & Just, S. N., 2016; Gregory., 2001) but on the

other hand marketers are focusing a lot on evaluation not only before and after the campaign but also during the on-going campaigns in real time with the help of big data analysis to measure and react in a quick manner (Strong, C. 2015), so there is also a need to use big data analysis in strategic communication processes to evaluate the performance of communication activity before, after and during the on-going campaign in to test, analyse and act in real time (David Feinleib's (2014) big data Feedback loop) to make informed decisions for future.

Strategic communicators can control and manage their communication content, selection of desired audience and communication costs in an effective way by adopting big data analysis and inbound marketing strategy.

7. Conclusion

The study results shows that the main challenge of using big data analysis is the identification of one's desired audience group and making adjustments into campaigns' content in real-time and we can predict the success of a communication campaign if the selection of desired audience groups and communication content is done correctly. High conversion rate with low budget of retargeting audience group shows that audience selection is more sucessful in real time after identifying the desired and most interested audience categories and most engaging content. So it can be concluded that the main challenge here is to know your audience which can be done by testing (according to Feinleib's (2014) big data Feedback loop) and the selection of attractive and engaging communication content which can be produced using inbound marketing strategy. By analyzing the testing part, one can find out the interested audience for the communication and then can produce content accordingly in order to act. In the selected case studies, 2018's campaign was considered as test for 2019's campaign and that's the main reason that 2019's campaign out performed by generating more leads, conversion (new customers) and by using 77% less budget as compared to the 2018's campaign. From 2018's campaigns data, company's B2C team learnt about the desired target audience, effective communication content, perfect timing to publish and many other related information so that's why they targeted the next campaign's content towards lesser but more relevant audience groups and they also selected the best performing communication content for 2019's campaign. Whereas in the case of 2018's campaign there was already available information about the desired target audience but also many selections and re-selection (re-targeting) were made on the basis of response from the early target groups when the campaign was up and running. So Big data and datafication driven campaigns demands vigilance in order to get the maximum results. It empowers what Strong (2015) said already, that big data agenda is "less about trying to 'predict and control' and more about 'measure and react' strategies." (p. 198) And it was the case during both campaign where they measure and react in real time but in 2019's campaign the 'predict and control' agenda was also implemented by analyzing 2018's findings.

By connecting the first research question of this study with the results, it can be concluded that the big data driven campaigns and their pre, post, and real-time evaluations can increase leads and conversions (new customers) by making informed decisions as done in the selection of retargeting group during both studied campaigns and can save budget by reducing target audience size. Fine tuning and micro-segmentation of desired target audience with big data

analysis has the potential to bridge the gap between sender and receiver of the communication. Big data analysis also increase the communication success rate as the selected receiver (target audience) is the one who is already looking for same or relevant information so the chances of receiver's interest in the communication content are much higher. So big data analysis and inbound marketing concepts has relevance and scope within the theoretical and practical field of strategic communication as in marketing and sales.

7.1 Potential benefits of micro-segmentation and inbound marketing supported by big data analysis

So it can be said that Big data is enabling the organizations to communicate and select the exactly right target audience groups for communication such as retargeting group, Lookalike 1% and villa owners. This finding can be related to Marr, B. (2016) research on Big data driven campaigns that "there was no margin for error and every cent would have to be spent efficiently" (*p.* 104). But if we see the results of Lookalike 4-10% and Lookalike 1-4% audience groups then the results were not as effective as in the case of retargeting and villa owners audience group. So big data driven campaigns can be called try and learn process where most of the learnings came on the way during the live-campaigns in real time which demands 'measure and react' approach suggested by Strong. C, (2015) in order to spent every cent efficiently with no margin of error. By measuring and reacting in real time, informed decisions can lead towards an increase in success rate and decrease in campaign's budget.

In relations to second research question of the study it can be said that higher conversion or success rate of 2019 campaign shows that testing and evaluation of selected audience groups through bid data analysis helps in getting more and more closer to desired target groups with every new campaign about same topic/product. Comparison of both campaigns also revealed that the smaller the target audience groups are in size the lesser will be the communication budget. And this become possible by knowing and then keeping the interested audience in and un-interested users out of the next campaigns' target groups and also producing and targeting them with the most relevant and engaging communication content. So we can say that over time big data analysis makes communication less expensive as it reduce the size and increase the relevance of target audience. So with big data analysis, strategic communicators are no more in a need to send their messages towards a broader and general audience. Audience size of 2018 campaign was larger than 2019 campaign but 2019's campaign was more successful by getting more leads, conversions and saving budget thus we can say that the broader and

more general target audience will consume more budget and generate less profits (less leads, conversions and new customers). Identification of interested audience also decreases the chances of annoying online users by targeting them with only the relevant content.

Despite the difference in both campaigns conversion rate and leads, the website traffic and number of impressions on the content of both campaigns was really high. 97% of all website traffic were new visitors during 2018's campaign and 91% of all website traffic during 2019's campaigns consists upon new visitors. Such high rate of website traffic shows the importance and strength of inbound marketing. Thus targeting audience with relevant and desired content resulted in high engagement and conversion rate.

The overall results showed that due to larger size of target audience of 2018's campaign there were higher number of website visitors, more impressions on social media and programmatic content as compared to 2019's campaign. But here the most important information is the number of leads and conversions that was higher in all places (website, social media, SEM and programmatic display) during the 2019's campaign with 77% less budget. This shows that 2019's campaign target even more relevant audience with more engaging and convincing content that leads towards more conversions as compared to the previous campaign. It show that big data driven campaigns perform better with the passage of time as the evaluation is crucial in order to make informed decisions. So it can be said that overtime by learning from big data analysis and evaluations, campaign managers can filter out and move closer to the desired audience which also leads towards cost efficiency and higher success rate by producing and targeting audience with relevant communication content.

Big data analysis for the selection of desired target audience in order to produce audience oriented communication content (inbound marketing) is a systematic process which can be introduced to all the audience oriented communication fields to enhance the effect of communicated message. From the strategic communication perspective, inbound marketing is a very interesting strategy to first produce audience oriented content and then test it by target the desired audience and by evaluating the performance of communication content (through big data real-time analysis) it can be changes, tweaked and adjusted. This study strengthen the belief that it is big data era and for effective communication big data analysis cannot be ignored in any communication process whether its strategic communication, marketing, brand or any other where the goal is to convey the message towards the desired receiver with its

maximum effect. Big data analysis don't have the magic bullet effect but it has the tendency to connect the sender with its desired receiver on online and offline platforms. The study results about different targeted audience groups shows that big data being natural, unbiased and real time gives the opportunity to select the right target group to communicate with. And then by introducing the communicator with its right target audience in advance, big data analysis gives the opportunity to prepare the communication content as per the needs of their target groups.

Big data analysis helps in finding the audience with the desired/matched demographics and psychographics as per the needs of product/ service. It also helps in the content production according to the users' online/offline behaviors. For instance if big data shows that majority of the target audience is using mobile device to watch videos or images then one can produce content in square of vertical format as per the needs of mobile screen, one can also find out that which time of the day most of their target audience is active on online platforms so communicators can schedule their content accordingly, big data gives plenty of such information about target audience which can be used in advance to produce and place communication content accordingly no matter if the communication goal is to spread awareness, generate sales, provide information or any other. It allows the sender to identify its desired target audience beforehand.

In the selected case studies with the help of big data, campaign managers were already aware of the digital devices their target audience groups were using so they produced content as per the screen/display size of audience's digital gadgets (mobiles, tabs and desktop), they were also aware of the many other demographics and psychographics of the audience. All this advance information was considered carefully during the content production. The data and results of both case studies revealed that big data, datafication and inbound communication are the future for strategic communication.

The findings of this study are equally important for practitioners and scholars in communications. For practitioners this study can be a door opener to start thinking and using Big data and datafication in their communication strategies and organic campaigns in order to manifold the success rate of their communication content. And for academicians this study is an attempt to connect big data, datafication and the concept of inbound communication with media and communications. Though the selected case studies were both marketing campaigns

but their main purpose was to spread awareness about the product/service. Unfortunately, during this study there was no option to select and study Big data driven issues/campaigns related to media and communication studies but this study is provoking both communication practitioners and researchers to consider and relate Big data with audience oriented media and communication studies. Collectively, it can be said that big data analysis provides the insights to target the desired audience with right information at the right platform and at the right moment to influence, engage and attract the audience to take desired action (buy).

As discussed earlier, the main purpose of both selected campaigns were to spread awareness towards the product/service offered by the company, so it can be concluded that the most important thing is to understand the potential of big data in receiver oriented communication process instead of focusing on the selected campaign area (marketing, sales and awareness). In fact the better we understand the big data the more we can explore its usability in many different areas. Study results also revealed that the most important step of big data analysis is the selection of right target audience and then by producing inbound communication content one can anticipate higher success rate if using same selection procedure of target audience (data mining) even in strategic communication campaigns and content without marketing goals.

In fact there are so many potential benefits of using big data analysis in order to understand the human behaviors, to improve strategic communication processes, generate sales and boost marketing but abundance of data is generating issues of privacy. Buying and selling online and offline users data has become a business for many organizations but there is a need to create and follow ethical and legal boundaries and suitable policies to restrict the misuse of big data such as personal information, geolocations, biometrics and all other forms of identification data.

7.2 Future agenda

For future studies, ethical and privacy issues of Big data and datafication can be explored more specially with the relevance of GDPR. Big data and datafication for the selection of desired audience groups can also be studied further by selecting organic communication campaigns such as organic posts on social media where audience is targeted without spending any money to see and compare the results with any paid campaign. Research can also be done in the field of media and communication studies to see the role of big data and inbound

communication. In order to explore and analyze the possibilities and opportunities of inbound communication in organic/unpaid communication there is a need to study HubSpot as a special tool (for inbound communication) from media and communications perspective. One can also compare Big data and inbound communication driven campaign with a survey and outbound communication driven campaign to study the difference in analyzing human behaviors through modern and traditional techniques.

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