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How Can Tibco Spotfire Enhance

Icelandair's Twitter Marketing?

Master of Science in International Business

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Abstract

With the increased use of social media platforms, being present on these platforms is not sufficient for companies to succeed and be ahead of their competitors. Nowadays, a large portion of consumers demand effective information flow from companies on social media and expect to receive sufficient amount of appropriate information by exchanging a very limited amount of effort. However, companies need to make sure that their social media messages are visible to as many people as possible, and also that the information the messages contain is of value to those specific customers. That being said, it is important to identify what kind of messages attract the most attention and, especially when it comes to Twitter, influential users to engage in the discussion.

In this paper, it is researched whether Tibco Spotfire can be effectively utilized in order to identify these influential Twitter users and other elements singled out by the theories under discussion as well as an additional measure is introduced, which can be implemented to increase the validity of the results. A dataset provided by Icelandair that includes every single tweet posted concerning the company between September 2013 and March 2015 is used to test the software and realize its capabilities. However, the dataset has its flaws due to the method used to extract it and therefore limits the research as it fails to provide accurate and reliable data for two of the nine variables of interest. Nonetheless, the dataset is able to assist in realizing the usefulness and potential of the software.

The results show that Tibco Spotfire can be used effectively to enhance social media performance as it manages to identify the elements put forth by the two social media theories under discussion. The software manages to identify the most influential users, both those with the largest follower base and the ones that have been the most active ones as well as it manages to identify several other variables put forth by the theories. However, there are several limitations to the research such as the inaccurate database, limited experience and knowledge with the software and limited amount of theories taken into consideration.

Keywords: Social Media, Twitter, Tibco Spotfire, Social Listening Tools, Marketing, Icelandair

Declaration of Research Integrity

This work has not previously been accepted in substance for any degree and is not being concurrently submitted in candidature of any degree. This thesis is the result of my own investigations, except where otherwise stated. Other sources are acknowledged by giving explicit references. A bibliography is appended.

By signing the present document I confirm and agree that I have read Reykjavík University's ethics code of conduct and fully understand the consequences of violating these rules in regards of my thesis.

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Date and Place   Kennitala   Signature

Preface

This thesis constitutes the final assignment towards a M.Sc. degree in International Business at Reykjavík University and was conducted with the assistance of Reykjavík University and Icelandair.

First of all, I would like to thank Hákon Ágústsson of Icelandair for his assistance and for providing me with the opportunity to work in association with the reputable company Icelandair.

Secondly, I would like to thank my sponsors, Dr. Valdimar Sigurðsson and Vishnu M. Ramachandran Girija for their support and guidance throughout the course of the project and for their input towards this rather thoroughly modern topic. Thanks you for giving up valuable work hours and being able to arrange meetings in your tight schedule. Your input and feedback is much appreciated.

Lastly, I would like to thank my family for the extremely valuable support over the last few months. Without it, this would not have been possible. Thank you.

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1 Introduction

Social media employs web-based and mobile technologies to create interactive platforms where users, individuals or organizations, discuss, share and create user-generated content. Given todays' tremendous reach and exposure of social media it is safe to say that we are experiencing an altogether new communication environment (Kietzmann et al, 2011). This new form of communication offers a variety of new sources that are created, edited and used by consumers, with the intent of educating each other about products, brands, events, etc. Therefore, strategies and tools used for communication with consumers have changed significantly in recent years (Blackshaw & Nazzaro, 2004), with an increased focus on brand management and monitoring on social media platforms where the traffic and information flow is mainly controlled by consumers.

For several years, there has been a dramatic shift in the functionality of the Internet. The famous phenomenon has developed towards applications that operate on user data and content initiated by individuals (Giannakouris & Smihily, 2013). This fact lead to the change in mindset of companies all over the globe. In order to reach consumers in the most effective and efficient manner, social media platforms had to be utilized (Kietzmann et al, 2011). Enterprises have not only embraced and accepted this new method of internal and external communication, but have actively integrated social media into the way they run their business (Giannakouris & Smihily, 2013).

Due to the openness of social media platforms, it is relatively easy for consumers to share their ideas and thoughts with other consumers or even a specific company. Some companies have managed to engage in conversations with its customers and gain valuable information and input towards product design and development (Vuori, 2012). When it comes to consumer – company dialog, Twitter is the social media platforms users tend to use for that purpose as it offers user-friendly environment to engage in a discussion with companies (Cha et al., 2010).

Social media are substantially different for other media and marketing tools (Godes et al., 2005). They represent dynamic, interconnected media that are run and controlled by consumers, and are beyond the control of any organization (Peters et al., 2013). Despite the

fact that social media is a new phenomenon, the first signs of the development of social media were visible almost two decades ago. In 1997, the social network platform Sixdegrees allowed users to create profiles and add their friends and friends-of-friends, which sounds rather similar to the dominant social media platforms of today's environment. (Kietzmann et al. 2011). However, it is only in recent years that social media platforms have become an important hybrid element of the marketing mix of most companies (Mangold & Faulds, 2009). Still, how companies utilize social media for marketing purposes can vary between different companies and industries with regards to their values and norms.

1.1 The Derived Demand

Patricia L. Mokhtarian and Ilan Salomon state in their article, *How derived is the demand for travel? Some conceptual and measurement considerations,* that people agree that since the origin of transportation as a field of scientific inquiry, travel is, and has been, a derived demand rather than a direct demand (Mokhtarian & Salomon, 2001). This simply means that Icelandair's success is heavily dependent upon the amount of people willing to travel either to or from Iceland, which Figure 1 below illustrates.
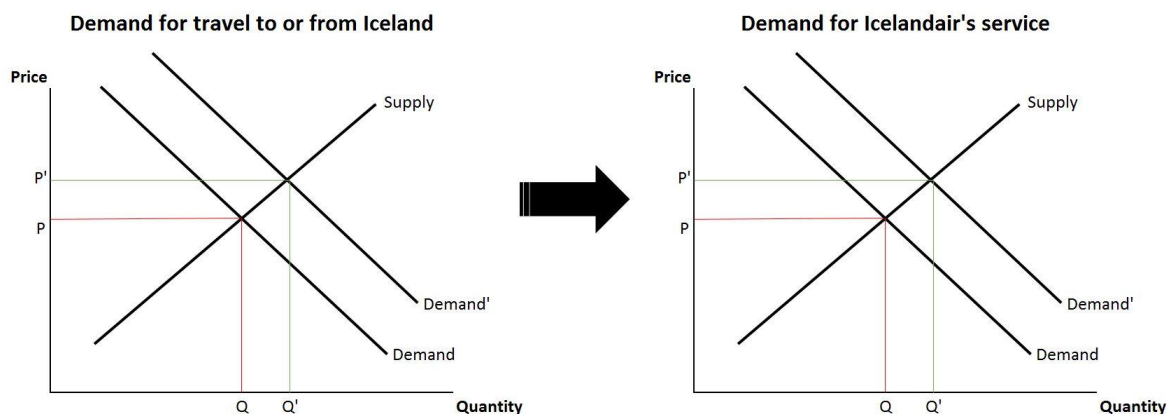
Figure 1 Derived Demand

Being aware of this fact, Icelandair has dealt with this situation very well when it comes to creating demand for Iceland among foreigners, most recently with their successful campaign *My Stopover*. However, this raises the question whether more emphasis could be put on the vice versa, or creating demand for foreign locations among Icelanders. According to a research conducted by Markaðs- og miðlarannsóknir (MMR) for the Icelandic Tourist Board in 2014, Icelanders are travelling internationally more frequently in the year 2013 than

in 2012 (Icelandic Tourist Board, 2014). This shows that Icelanders are travelling more than they used to which has to be addressed, due to the increased competition in the domestic market. With this increased domestic competition and increasing number of airlines flying through Keflavík Airport, Icelandair must make sure that it remains the Icelandic population's first choice when it comes to travelling abroad. The Saga Club loyalty program is one way of achieving that goal, but social media platforms could also be utilized for this purpose.

1.2 Reason for Study

In fall 2014, a research project at Reykjavík University in co-operation with Icelandair concerning social media marketing was offered for application. Icelandair has, in my opinion, always been one of the most admired companies in Iceland, and would it be both an honor and great experience to work with them towards the end of my studies at Reykjavík University.

Twitter is a relatively new method of communication, and therefore, the research that has been conducted concerning the media is relatively limited (Cha et al., 2011). However, due to the ongoing implementation of Tibco Spotfire, the research will be focused on the utility of the software when it comes to Icelandair's Twitter, or microblog, marketing.

That being said, the following research question is put forth:

How can Tibco Spotfire enhance Icelandair's Twitter marketing?

The thesis will aim to answer this question by studying how Tibco Spotfire can provide valuable and executable information, related to the theories covered within the paper.

1.3 Structure of Study

The thesis is split into four parts, *Introduction, Literature Review, Study* and *Conclusion.* The intent is to begin to cover the subject with a wide perspective and then narrow the scope as the end of the project draws near. Towards the end, results will be presented along with discussion and conclusion. An illustration of the thesis structure is presented by Figure 2 below.
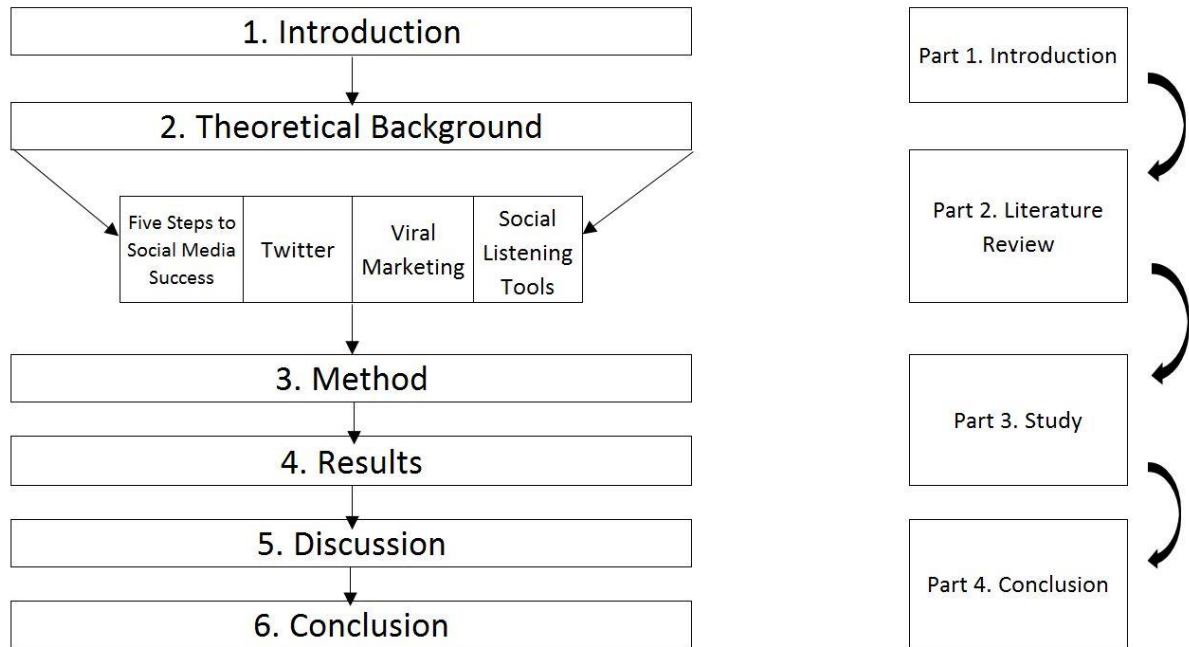
Figure 2 Thesis Structure

Part 1 provides introduction to the project and how it came about as well as some main principles concerning social media marketing and the development of social media platforms. The research question is put forth and how the thesis aims to answer it is explained.

Part 2 covers all the theoretical background to the study, i.e. the literature review. The theories that are used as a framework are explained as well as the fundamentals of both Twitter as a marketing tool and the importance being visible, active and effective on the platform. Also, the section emphasizes the importance of social listening tools when it comes to monitoring and data analysis.

Part 3 explains the methodological approach employed to answer the aforementioned research question and introduces the provided dataset and the assumptions that needed to be implemented due to specific limitations of the data.

Part 4 concludes the paper by presenting the research findings from the software analysis as well as personal inputs and suggestions concerning the thesis content or for further research as well as limitations to the study. Also, a new measuring indicator is put forth, either as an individual measure or as a complimentary to already published ones.

2 Literature Review

2.1 What Is Social Media?

Social media is the group of Internet-based applications that build on the ideological and technological foundations of Web 2.0 where the creation and exchange of User-generated Content (UGC) has become reality (Kaplan & Haenlein, 2010). Although the definition for Web 2.0 is ambiguous and evolving (Vuori, 2012), it is often defined as the certain applications on the Internet that allow interactive sharing and participation among individuals and organizations (BusinessDictionary, 2015).
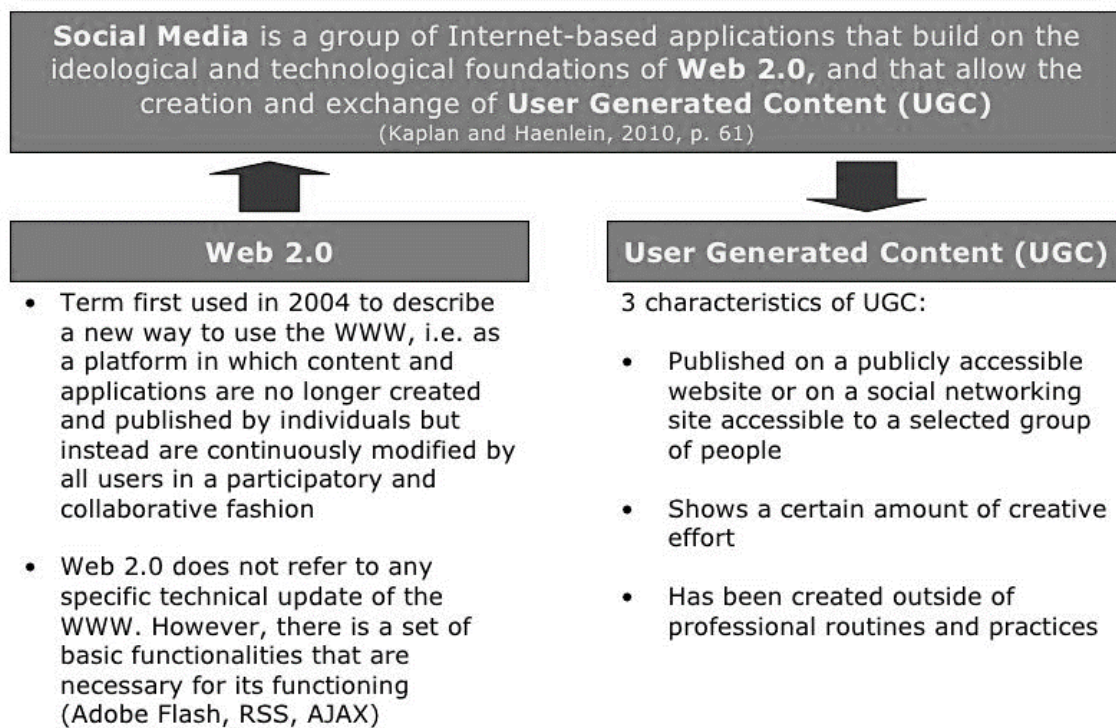
Figure 3 Social Media (Kaplan & Haenlein, 2010).

The internet has reshaped how people conduct research on goods and services, including travel services and the way tourism-related information is distributed (Buhalis & Law, 2008). Technological progress and tourism have been going hand in hand for many years (Sheldon, 1997) and social media applications are playing an increasingly important role as information platforms for travelers and travel enthusiasts all around the world. Therefore, it is essential for companies to pursue the opportunities provided by utilizing social media platforms to acquire or retain customers (Xiang and Gretzel, 2009).

Managers often wonder how much they should spend on social media marketing and where the return-on-investment (ROI) can be found. According to Lon Safko, the author of *The Social Media Bible*, that mindset tends to be incorrect. In fact, social media is simply a new set of technologies and a concept that needs to be added and integrated into an existing marketing strategy and there is always a ROI to marketing (Safko, 2012).

The tremendous size and global reach of social media networks, such as Facebook, Twitter, Instagram and LinkedIn is nothing short of marvelous. If social media platforms were a countries, Facebook would be the third largest country in the world, tracking behind only China and India and "some say that this is the biggest shift since the industrial revolution" (Saravanakumar & SungthaLakshmi, 2012) and Twitter of similar size as the United States of America. However, there are dozens – if not hundreds – of social media applications available for companies to utilize so it is important to choose the appropriate platforms carefully. The size and the reach of the platform can be a determining factor when an application is chosen, but often companies can choose a desired platform with users that share specific demographics or characteristics, based on their target audiences (Kaplan & Haenlein, 2010).

A mere ten years ago, online marketing did not even exist. However, in the recent years, online marketing and improved information technology have influenced businesses all around the globe. Hence, the online marketing environment is a very young field of study and changes rapidly, which has to be addressed with flexibility, attention and an open mind in order to be effective (Armstrong & Kotler, 2012).

Martin Grancay mentions in his article *Airline Facebook pages – a content analysis* that the emergence of new media has changed the way in which airlines interact with the public. Some of the most popular social media platforms, such as Facebook and Twitter, provide new methods of communicating with customers, enhancing brand image, and managing public relations by utilizing user-generated content (UGC) and diversifying sales channels (Grancay, 2013). However, social media is most commonly categorized as 'soft marketing' that affects the company's brand performance and customer relationship rather than 'hard sells' but social media is challenging the traditional notion of customer relationship management (CRM) and brand management. Within the social network platforms, the

customer is no longer limited to a passive role in the relationship and can have a significant impact on the company's brand performance (Malthouse, Haenlein, Skiera, Wege, & Zhang, 2013). Therefore, to be successful and stand out in the rapidly changing digital freedom, being visible does not tend to be sufficient. Companies need to take different marketing theories into account and develop an appropriate social media strategy in order to improve their brand performance in the ever-changing online environment (Saravanakumar & SuganthaLakshmi, 2012).

2.2   The Five Steps to Social Media Success

In *The Social Media Bible*, Lon Safko mentions The Five Steps to Social Media Success

- Analyze Your Existing Media;
- The Social Media Trinity;
- Integrate Strategies;
- Resources; and
- Implement and Measure

According to Safko (2012) these five steps are synergistic, that is the total outcome is greater than the sum of each step. Therefore, these steps should be operated jointly in order to maximize social media success. Refer to Figure 12 in Appendix A for an illustration of the theory's structure.

2.2.1   *Analyze Your Existing Media*

In step one, Analyze Your Existing Media, companies should list every ongoing marketing strategy and campaigns and look at expenses related to them. Then find out if possible, how many new customers or potential customers have been generated with this strategy and divide to realize the cost of customer acquisition (Safko, 2012). By doing so, one can filter out ineffective strategies and campaigns and allocate effort and resources accordingly. When social media is concerned, a proper social listening tool is required to determine the amount of new or potential customers. Tibco Spotfire would be well suited for this task. Tibco Spotfire will be discussed later in the paper.

2.2.2 The Social Media Trinity

Step two, The Social Media Trinity, suggests pushing aside all social media hypes and noises and focus on the three most important categories of social media:

- Blogging;
- Microblogging (Twitter); and
- Social networks

Blogging

Blogs are a vital component to social media marketing. Blogs help companies build a trusted follower base, allow for brand management in an effective environment and place the company in front of the audience automatically (Safko, 2012). Many companies use blogs as one of their marketing channels. However, it is important for the company to know what drives and interests the audience. If successful, repetitive and influential readers will emerge, which results in a positive outcome for the company (Hsu & Lin, 2008).

Microblogging (Twitter)

According to Java, Finin, Song and Tseng (2007), microblogging is a relatively new form of communication designed for users to share their current status is the form of a short instant-messages shared over the Internet using either a computer or a mobile device (Java, et.al, 2007)

> *Everyone is talking about Twitter. Lady Gaga has more than 18.5 million followers and Justin Bieber has nearly 17 million followers. That's more followers than the combined populations of Ireland, Norway, and Panama, each. Oprah has nearly 9 million followers. This is all reason enough to take Twitter's capabilities seriously.* (Safko, 2012, Chapter 23, Section 3, para. 1).

The numbers stated above are from 2012 and have dramatically increased since then. For example, Lady Gaga has over 45 million followers and Justin Bieber around 63 million. This simply shows how rapidly Twitter is growing, and the opportunities the platform has to offer are enormous.

Companies have to keep in mind who within the organization will be tweeting and managing the Twitter account, and also who else in the industry is visible on the platform. Safko (2012) suggests to follow industry leaders and study how they operate their Twitter accounts with respect to content, length, frequency, and timing.

Using Twitter and being successful is a difficult task but very rewarding, if done properly. In 2010, Dell stated that the use of Twitter for marketing generated over $1 million for the company by simply alerting Twitter users about upcoming sales (Kaplan & Haenlein, 2010).

However, it is important to determine what strategy to use. Is the company's main objective to sell when using Twitter, or is it intended to educate, create personal interaction to build trust or simply enhance brand awareness? Safko (2012) suggests that Twitter should not be used with a direct focus on sales. A company should rather use Twitter to build trust, inform potential customers of offerings and stay visible. When the customer is ready to purchase, he will (Safko, 2012). Still, identifying influential Twitter users or *alpha users* (Anger & Kittl, 2011) can be very beneficial to companies and integrating into their strategy means to engage these individuals in order to increase the reach of the messages or information being shared (Cha et al., 2010).

Social Networks

A trusted social network is a group of like-minded people that come together to share information, thoughts and ideas. These groups sometimes count hundreds of millions of users, like on Facebook and Twitter, which share their thoughts, opinions, photos, etc. with each other. A trusted social network can also consist of a single, influential person. That person uses his or hers influence, which usually is measured in number of followers, to share information, reaching a great number of users.

2.2.3 *Integrate Strategies*

The third step is integration where the Social Media Trinity needs to be completely integrated into the company's current marketing strategy. This step combines the outcomes of the two previous steps into a coherent strategy. The strategy to use depends on the chosen media and the chosen media depends on the target audiences. If two or more medium are to be chosen, the message should not be the same on all of them. People expect different types

of messages on different platforms, even though if they are the same people. Consumers expect different messages Twitter than they do when they are reading the local newspaper, for example (Safko, 2012).

2.2.4   *Resources*

In the fourth step, it needs to be decided who will be responsible for implementing the actions determined by previous steps (Safko, 2012). The question usually arises whether that person or team should come from within the company or if it should be outsourced to a third party. If the latter option is chosen, it is recommended to involve the third party earlier in the process and get its input on the previous steps.

All marketing efforts require human resources to implement and social media is no exception. However, social media is free does not require huge media purchases or production, such as when advertising in a popular magazine and that fact can most certainly be categorized as a resource. Also, it is important to turn back to step one and find out the cost of the campaigns that had lower-than-expected returns. If operated correctly, in contrast with the current environment and industry, social media should be able to generate at least the same returns while keeping expenses down (Safko, 2012).

2.2.5   *Implement and Measure*

There are many different tools that can be used to measure marketing success or returns. However, it is important to distinguish which methods or tools are to be used before the campaign is launched. There are many free tools such as Google Analytics for web pages and blogs and Seesmic Desktop or TweetDeck for social media such as Twitter available online, free of charge (Safko, 2012). Also, more sophisticated ways such as Radian6 and Tibco Spotfire are also available but not for free like the ones mentioned above. However, these tools offer a greater variety of options and features do exploit both when it comes to day-to-day monitoring and larger database analysis, even though the theory does not place any emphasis on day-to-day monitoring.

2.3   Twitter

Alex Burns and Stefan Steiglitz (2013) state in their article *Towards more systematic Twitter analysis: metrics for tweeting activities,* that Twitter is a new and influential social media platform, but most of the research that has been conducted concerning the program remains centered around isolated cases, e.g. political or crisis communication (Burns & Stieglitz, 2013). In June 2009, during Iran's presidential elections local authorities decided to interrupt mobile communications and block popular social media applications such as Facebook and Youtube to prevent protesters to share footage of the police violence taking place. However, they forgot about Twitter and during that day hundreds of photos of the conduct was shared globally through the application. Twitter even decided to reschedule a planned maintenance shut-down due to the matter. Some state that the U.S. government played a vital role in that decision making (Kaplan & Haenlein, 2011).

This shows us the dramatic influence Twitter can have and companies have been taking advantage of this in their business operations. The reach of the medium can be so enormous that it is almost impossible to neglect.

2.3.1   #Hashtags

Hashtags are keywords, prefixed by the symbol "#", that are intended to assist with Twitter research by making specific communications rather easy to find and track despite the endless amounts of tweets being posted continuously (Burns & Stieglitz, 2013). Hashtags vary significantly when it comes to specificity, everything from #lol or #win, which are commonly used without any relation to a specific topic, to #royalwedding where users shared information and pictures during the British royal wedding in April 2011. A few of these topic specific hashtags have emerged in Iceland, for example, #fotboltinet where Icelandic football enthusiasts share their information and thoughts with each other effectively as well as the famous #MyStopover hashtag associated with the successful marketing campaign set out by Icelandair bearing the same name.

2.3.2 Twitter Metrics

According to Anger and Kittl (2011) there have been several ways to measure influence on Twitter introduced to the public such as *Follower/Following Ratio* and *Retweet and Mention Ratio*. Among the many millions of Twitter users, only a small percentage of all users are so called influencers or alpha users. These users have a large and active audience and thus, their messages are received and shared within many micro-environments and eventually reach the attention of a large amount of users, even though they may not be direct followers of the original influencer (Anger & Kittl, 2011). Cha, Haddadi, Benevenuto and Gummadi (2010) mention in their article, *Measuring User Influence in Twitter: The Million Follower Fallacy*, that studying influence patterns can prove to be valuable for companies in order to realize what kind of trends are being adopted faster than others and how they are being adopted. By realizing that, companies have the possibility to design more effective marketing campaigns, especially when it comes to social media marketing campaigns (Cha, et al., 2010).

Today, there are several rating services that calculate a users' social media score on Twitter and one of the most popular and most commonly used in this sector is a rating service called Klout. Klout has formed alliances with several partners who integrate their scoring algorithm in their products, for example Salescforce Radian6, which is currently being used by Icelandair. However, Klout's complex algorithm used to calculate the score is not published and can only be used within its partner's products (Anger & Kittl, 2011). Still, it would be beneficial for companies to be able to calculate similar scores, using a different method, and comparing the results to increase the validity of the outcome. That being said, an additional measure will be introduced later in the thesis as a suggested idea of a measure created by the author.

2.4   The Internet and Social Media in Iceland

In January 2014, Statistics Iceland (2014) published a report on computer and internet usage among the Icelandic population compared to other European countries. According to Statistics Iceland's report, Iceland has the highest percentage of Internet users in Europe with

95 percent of the population being regular users of the Internet in 2013 and 79 percent of Icelanders aged 16 to 74, are active users on social media platforms (Statistics Iceland, 2014). This fact proves that the Icelandic population offers an excellent opportunity for marketing communication via the internet and social media platforms. Figure 4 presents a figure displayed in the report published by Statistics Iceland where Iceland is situated on the top of the list.

Hlutfall reglulegra netnotenda í Evrópu
Percentage of regular Internet users in Europe

Country	Value
IS	95
NO	93
EU28	72
SE	92
FI	89
DK	91
DE	80
NL	92
BE	80
LU	93
FR	78
IT	56
ES	66
PT	58
GB	87
IE	75
CZ	70
PL	60
SK	74
LT	65
LV	71
EE	77
AT	77
HU	71
SI	69
HR	63
RO	45
BG	51
MT	66
GR	56
CY	62
TR	40

Skýringar Notes: Lönd þar sem rannsóknin er lögð fyrir, raðað eftir hnattlegu
Countries of the survey, ordered by global position.
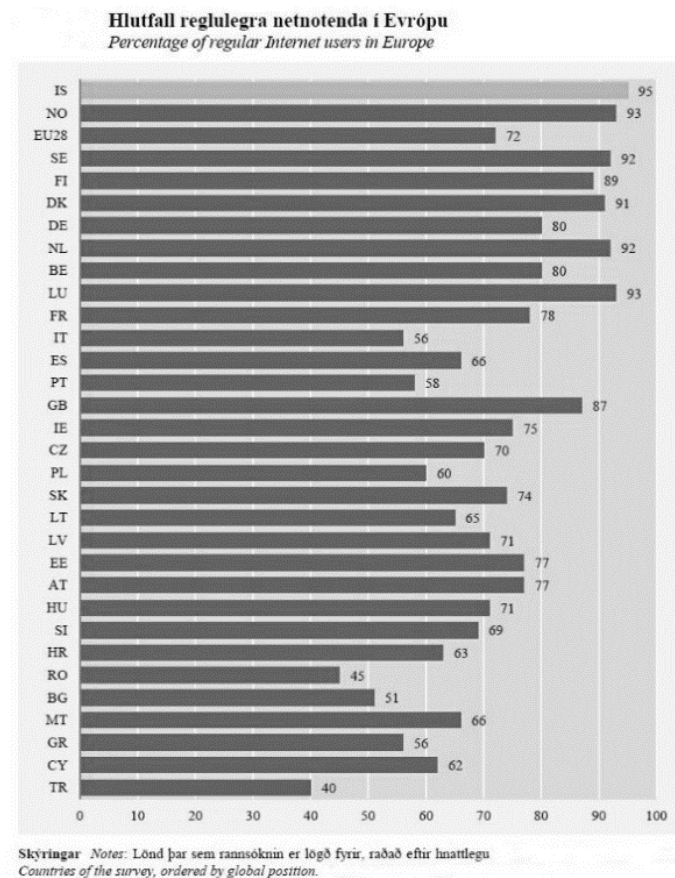
Figure 4 Internet Usage (Statistics Iceland, 2014).

According to Statistics Iceland's report, Icelanders tend to use social networking sites more often than their counterparts in other European countries. However, other types of social media tend to be relatively more popular in other countries (Statistics Iceland, 2014), which Figure 13 in Appendix A illustrates.

2.5 Conditions for creating a viral marketing epidemic

Kaplan and Haenlein (2011) state in their article, "*Two hearts in three-quarter time: How to waltz the social media/viral marketing dance",* that the concept of viral marketing is a relatively young one, and the term was first introduced by Jeffrey Rayport in 1996. However, the widespread use of social media has pushed this idea to a whole new level. In the article they define viral marketing as electronic word-of-mouth and illustrate four steps executives should take in order to be successful when it comes to social media and viral marketing, i.e. how to dance the social media/viral marketing waltz (Kaplan & Haenlein, 2011).

The four steps mentioned above are as follows:

- One … way: Viral marketing goes social media
- Two … concepts: Word-of-mouth and viral marketing
- Three … conditions: How to create an epidemic
- Four … groups: Social media viral marketing campaigns

As mentioned above, viral marketing is a relatively young concept but has an enormous potential when combined with social media since social media platforms are exceptionally handy and user-friendly when it comes to receiving messages and passing them on. Refer to Figure 14 in Appendix A for illustration.

Word-of-mouth is a much older concept than viral marketing but it captured the interest of market researchers over five decades ago (Kaplan & Haenlein, 2011). Word-of-mouth can be defined as the sharing of information about a specific product, service, promotion, and etc. between a consumer and a friend, colleague, or other acquaintance (Kurian, 2013). Word-of-mouth has shown to influence decision making significantly by modifying consumers' attitudes and behavior. According to Katz and Lazarsfeld (1955) word-of-mouth communication can be up to seven times more effective than traditional printed advertisement when it comes to a purchasing decision (Katz & Lazarsfeld, 1955). Viral marketing is often defined as electronic word-of-mouth and therefore considered very effective when it comes to marketing and brand management as it is the notion of sharing information related to a brand or a company in an exponentially growing way, often through the utilization of social media. When the traditional word-of-mouth is compared to the

electronic one, the latter has two main advantages. Viral marketing has a higher diffusion speed for new pieces of information compared to traditional word-of-mouth and it is a lot easier to monitor with the help of social listening tools (Kaplan & Haenlein, 2011).

According to Kaplan's and Haenlein's (2011) theory, three basic conditions have to be present in order to create a viral marketing epidemic. In short, these three conditions are that the right people must get the right message under the right circumstances as seen in the following figure.

The three basic conditions for creating a viral marketing epidemic
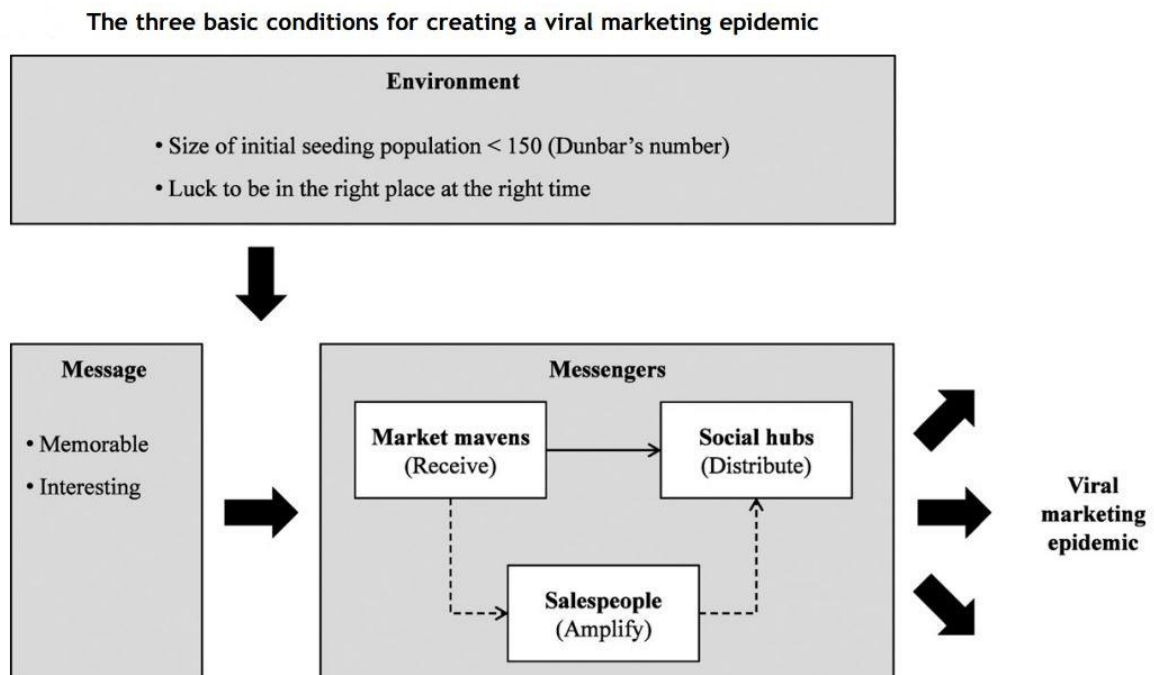
Figure 5 Three Basic Conditions (Kaplan & Haenlein, 2011).

It is essential to select influential and appropriate people to share the message in order to reach the intended audiences. Also, three groups of messengers...

- Market mavens
- Salespeople
- Social hubs

…are required in order to increase the chances of the transformation of normal message into a viral epidemic. *Market mavens* are individuals that possess a large amount of market information and often engage in discussions with other consumers and spread information.

These individuals are up to speed with what is going on in their fields of interest and are usually the first to receive new messages and transmit them to their social network (Kaplan & Haenlein, 2011). *Social hubs* are defined as influential people with substantial social connections. These people often know enormous amount of people and are able to serve as bridges between different subcultures (Goldenberg, Han, Lehmann, & Hong, 2009). An example of social hubs are active individuals on Twitter with exceptionally many followers that are able, with a simple click, spread a certain message all over the online world. However, sometimes a direct link between market mavens and social hubs is not enough. That is when the *salespeople* come in. Salespeople are people that have the ability to receive a message or information from the market mavens, amplify it according to the intended audiences' preferences and then transmit it to social hubs for further distribution. By doing so, the message or information is more likely to be properly received by the target audiences and generate better results.

Even the perfect mixture of market mavens, salespeople and social hubs have very limited value if the initial message is not adapted or does not have the potential to become viral. Messages have to be both interesting and memorable in order to have any chance to be passed on to others and potentially become viral (Kaplan & Haenlein, 2011). Also, according to a research by Chiu, Hsieh, Kao, and Lee (2007) people are more willing to pass on utilitarian or more hedonic messages and if it comes from a close interpersonal source rather than an unfamiliar interpersonal or commercial source (Chiu et al., 2007).

In addition to creating the right message for the right people, two environmental conditions do influence the success of the message significantly. Messengers will only pass on a message that they believe to be something new or interesting and something that not everyone knows about. Companies tend to fail in trying to create a viral epidemic because they spread the initial message too broadly. That can cause people to be reluctant to pass the message on because they believe everyone already knows about it. Kaplan & Haenlein (2011), mention that the maximum initial seeding population should not exceed 150 people, often referred to as the Dunbar's number (Kaplan & Haenlein, 2011). This threshold is related to the size of the human neocortex and the maximum number of people a person can maintain a stable social relationship with in their daily life (Hill & Dunbar, 2003).

Social media campaigns are categorized into four groups depending on their outcome and origin. The four groups are illustrated in the Figure 6 below.

The four groups of social media viral marketing campaigns

Figure 6 Four Groups of Campaigns (Kaplan & Haenlein, 2011)

Strokes of luck are social media campaigns that are not set out by the company but rather by its customers. The customer is most likely someone who is exceptionally satisfied with the given company and has managed, intentionally or not, to create a viral campaign where the company itself benefits. *Nightmares*, on the other hand, generate the opposite outcome. It is usually set out by an unsatisfied customer that wants to share his or hers dissatisfaction and manages to gain attention on the matter, eventually harming the company or brand. *Triumphs* are successful viral marketing campaigns that are set out by the company. This group of campaigns is probably most rewarding for the company and its employers as it serves as a reward for a job well done. On the other hand, *homemade issues* are social media viral marketing campaigns that are set out by the company itself but do not manage to generate a positive outcome, for some reason. This can be related to the message itself, its

means of distribution or simply the timing, i.e. the environment was not set to receive this particular campaign (Kaplan & Haenlein, 2011).

It is difficult to determine beforehand whether a social media viral campaign will be successful, but the fate of the campaigns is eventually placed in the hands of the company. In case of a nightmare or homemade issue emerging, it is essential to use proper social listening tools since it is the company's responsibility to strive to transform nightmares into strokes of luck and homemade issues into triumphs.

2.6   Social listening and data analysis tools

Social listening tools are tools or programs, which share a common goal to enhance performance on social media platforms. They allow the user to gain valuable insight into its social media efforts and offer statistics that can be utilized in further decision making. Also, some social listening tools allow the user to monitor its social media activities on different social media platforms simultaneously at one location, which results in a more effective and efficient social media monitoring.

2.6.1   Tibco Spotfire

Tibco Software is a global leader in infrastructure and business intelligence software trusted by businesses around the world (Barchart, 2014), and Icelandair has recently adopted one of their products, Tibco Spotfire. Tibco Spotfire is a social listening and data analysis tool utilized to analyze and enhance performance on social media platforms. The software allows the user to import datasets, large and small, and analyze thoroughly in a user-friendly environment. Tibco Spotfire can be used to determine the amount of new potential customers, followers and participants in the discussion on Twitter in a relatively easy manner, as every row of data has a specific time and date attached to it, which would be helpful concerning the first step out of the five steps to a social media success presented by Lon Safko (2012). The software also provides countless ways to present data on and understandable form for presentations and reports (Barchart, 2014).

According to Gartner's Magic Quadrant (2014) despite being a relatively young software, Tibco Spotfire is categorized as one of the leaders in business intelligence and analytics platforms as it scores quite high on both the ability to execute and the completeness of vision (Sallam et al., 2014), as Figure 7 illustrates.

Figure 7 Gartner Magic Quadrant BI & Analytics 2014

2.6.2 *Salesforce Radian6*

Salesforce Inc. is a global cloud computing company best known for its customer relationship (CRM) product, but has expanded into commercial applications of social networking, for example, through acquisition (Salesforce.com, 2015). In 2011, Salesforce announced a deal to buy Radian6, which provides companies with social media monitoring

tools, for $340 million, and since then Radian6 has been a major part of Salesforce's product offerings. According to Salesforce, at the time of acquisition, Radian6 has technology that *"captures hundreds of millions of conversations every day across Facebook, Twitter, YouTube, LinkedIn, blogs and online communities, and provides actionable insights in real time"* (Savitz, 2011). Radian6 also looks for trends, both positive and negative, and informs the user of any trend or discussion about the brand that is being monitored. Salesforce Radian6 comes with a price, but it is well worth the price when it comes to day-to-day social media monitoring (Safko, 2012).

According to Gartner's Magic Quadrant (2014) Salesforce, the owner of Radian6, is a definite industry leader when it comes to applications for customer relationship management (CRM) and customer engagement (Maoz, 2014), as Figure 8 below illustrates.

Magic Quadrant

Figure 1. Magic Quadrant for the CRM Customer Engagement Center

Figure 8 Gartner Magic Quadrant CRM 2014

The reason for the company's position within the magic quadrant is that the company's software scores high on the aforementioned scales, ability to execute and completeness of vision and maintains an advantage on its competitors on both of the scales.

However, the limitation do data storage within the software is very limited. Radian6 only allows the user to trace back data from 90 days ago whilst many social media platforms allow for the export of a complete raw data file tracing back to the creation of the account. Therefore, an alternative software is required to analyze larger portions of data (Salesforce, 2015), such as Tibco Spotfire.

3 Method

The following sections show what methods were utilized for the research of this research thesis.

The ever-increasing importance of social media marketing and the co-operation with Icelandair sparked the interest to try to answer the following research question:

How can Tibco Spotfire enhance Icelandair's Twitter (micro-blog) marketing?

The goal is to answer the aforementioned question by conducting a software analysis on Tibco Spotfire using a data set provided by Icelandair, from the company's Twitter database. The research aims to observe trends and realize which users, people or institutions, are influential in order to aim trendy tweets towards those specific users.

A software analysis approach was chosen due to the fact that the research question stated above can best we answered by testing the software at hand using the available data. It helps with determining the software's capabilities to identify the elements introduced by the social media theories mentioned earlier. Afterwards, a quantitative research approach could be employed if the software proves to be useful when it comes to identifying the aforementioned elements.

3.1 Objectives

The objectives of the research is to determine whether Icelandair can improve its Twitter marketing by utilizing social media listening tools, such as Tibco Spotfire.

- Analyze available data
- Realize the capabilities of the software
- Identify additional influence measures

The results will determine how the tool mentioned above is suited to enhance Icelandair's Twitter marketing by identifying the specific elements put forth within the social media theoretical guidelines presented earlier in the paper.

3.2 Data sample

The data sample used in the research was obtained on the 6th of March 2015, from Hákon Ágústsson Project Manager in the Marketing and Business Development department of Icelandair. The data sample consists of an Excel-file holding around 88 thousand tweets made by or concerning Icelandair, from 1st of September 2013 to 6th of March 2015. The data within the dataset was extracted from Twitter simultaneously during the time frame above and each row of data holds nine variables of interest:

- User profile name;
- Link to the specific tweet;
- The content of the specific tweet;
- Link to a posted photo, if any;
- Time of post;
- Language of post;
- User follower count at the time of post;
- Retweets; and
- Favorites

However, due to the fact that the dataset was extracted simultaneously from the 1st of September 2013 to the 6th of March 2015, the dataset does not provide accurate information regarding retweets and favorites, as the data connected to a specific tweet might have been extracted before the tweet matured and fulfilled its potential in terms of reach and influence.

Therefore, the dataset is used as an example of data that should be analyzed and applied.

3.3 Corrupted Data

The data set was modified and corrupted rows of data removed. Corrupted data includes data from twitter accounts that have been deleted at the time of data export and therefore lack necessary information and Twitter-bots that post invisible tweets. Corrupted

data counted for about 1.2% of the dataset exported from Icelandair's Twitter account as Table 1 represents.

Table 1 Corrupted Data

Corrupted Data

	Number of rows	Ratio
Total rows of data	87,654	1.000
Corrupted rows	1,054*	0.012*
Healthy rows	86,600**	0.988**

Note. * = removed, ** = used

All numbers presented in the results are drawn from the dataset, such as number of followers each Twitter account under consideration has. According to Hákon Ágústsson of Icelandair, the data within the dataset was extracted simultaneously, or every couple of hours, and therefore fails to present the correct amount of retweets and favorites each tweet generated. Therefore, using this dataset, it is impossible to determine the success of a specific tweet and influence of specific users. Also, the number of followers for each user are listed as the number of followers at the time of each post, which has to be taken into account. Therefore, the number of followers had to be represented as the sum of follower count at the time of each tweet divided by the total number of tweets

$$(FollowerCount_1 + FollowerCount_2 + ... + FollowerCount_n) / n = TFollowerCount$$

or the number of followers at the time of the most recent post

$$FollowerCount_n = TFollowerCount.$$

This latter method was chosen because the author believes it gives a more accurate insight into the current significance and influence of the user. If a user tweets about Icelandair very soon after the creation of the account and then the user's follower base increases dramatically before the next tweet is posted, there is a chance that the follower count for that specific user would turn out inaccurate if the average method is utilized. Therefore, the number of followers at the time of the most recent post is used.

When the corrupted data had been removed, the dataset was uploaded into the Tibco Spotfire software where it was analyzed and categorized. Categorizing the tweets and accounts is an important part of the process of detecting the most active and the most influential users and detecting these users provides valuable information on how the company's Twitter marketing can be improved.

3.4   Procedure

The theories mentioned above list out several elements required for successful social media marketing. This research aims to identify these elements using Tibco Spotfire:

- Users with the largest follower base
- Users with the highest number of tweets
- Words that are most commonly found in tweets concerning Icelandair
    - Tweets by Icelandair
    - Tweets by other users
- The most commonly used languages
- When tweets are being posted

3.5   Analysis

The goal was to import the dataset and try to identify and display the elements listed by the theories and when the dataset had been imported into the Tibco Spotfire, the software was tested to the limit. By doing so, the author will gain better insight into the software's ability.

3.5.1   Using Tibco Spotfire

Tibco Spotfire is a tool designed to analyze databases of all sizes, large or small. It provides an endless number of ways one can look at the data, and visualizes the outcomes in a user-friendly manner. Access to the tool was provided by Icelandair and the aforementioned data set as well. The research aims to realize the potential of the software with the theories mentioned earlier in the paper in mind.

4 Results

This section presents results from analysis of the database provided by Icelandair and are presented in writing, graphs and tables. All numerical results displayed are solely dependent upon the data available within the database and stands and falls with the accuracy and validity of the data.

4.1 Most active users

When determining the most active Twitter users I looked at the users that have posted the highest number of tweets concerning Icelandair. Tibco Spotfire came in very helpful as it allows the researcher to arrange each Twitter user depending on the number of tweets he or she has posted. That way, it is fairly easy to realize those who have provided the most activity and narrow down the selection. For detailed breakdown of the ten most active users, refer to Table 2 below. In Figure 19 in Appendix B, these results are presented as a bar chart.

Table 2 Most Active Users

Most Active Users | Top 10

Name	Tweets	Followers	Comments
FlyEIA	367	19,491*	*Edmonton International Airport. Active in regards to retweets from airlines.*
Cool Iceland (icelandcool)	277	979*	*A source of retweets about Iceland. A small follower base = rather uninfluential.*
Tiny Iceland	237	8,593*	*www.tinyiceland.com is a website with articles, tips, videos, etc. About Iceland. Mostly retweets.*
Kinolina	172	1,614*	*Eric, an individual from Seattle. Mobile web developer. Active Twitter-user. Relatively small follower base.*
Realfamilytrips	171	5,035*	*A platform for users to share their travel experiences with others and assist with travel decision making.*
ReykjavikStyle	166	1,047*	*Icelandic fashion platform that auto-retweets the hashtags #Reykjavik, #Iceland and #Icelandic. Relatively small follower base and most likely rather irrelevant.*
SocialReykjavik	139	938*	*Auto-retweets some tweets posted in Reykjavik from both individuals and companies.*
Where's #HeklaAurora	131	81*	*A Twitter account created solely around Hekla Aurora and posts information about its current and future locations. Retweets Icelandair tweets concerning the specific aircraft. Extremely small follower base.*
Minijupe69	121	603*	*A woman located in France. Visits Iceland regularly and tweets in French. Very small follower base.*
Whoflies	121	73*	*A platform that provides latest travel and airport information. Very small follower base.*

Note. * Follower count at the time of most recent post

What was rather surprising when looking at the most active users, was the fact that the leader in this category is Edmonton International Airport. The airport is very active when

it comes to promoting itself as a destination and it does so by retweeting and engaging in discussions on Twitter with airlines that utilize the airport. The majority of the other Twitter accounts that med the top ten list when it comes to activity, were accounts that are very keen to retweet tweets concerning Iceland in general and social platforms where people share their travel experiences with other users in order to assist each other choosing desirable travel destinations. Even though these ten Twitter accounts are the most active ones, it does not mean that they are the most influential ones. The limited amount of followers many of these accounts hold results in a relatively limited reach, i.e. the posts tend to be seen by rather few people.

4.2   Most followed users

Catching the attention of users with a large number of followers is in most cases something Twitter users, especially companies desire. These users have been mentioned before in the paper, then referred to as social hubs. It can prove beneficial for Icelandair to find out what users that fall under the category of social hubs have shown Icelandair interest on Twitter and if a stronger social relationship can be built with these users. Again, Tibco Spotfire was able to complete the job and filter these specific users out.

However, since the database only holds information about how many followers had at the time of each post made, it became more challenging to determine the number of followers for each user because the result was heavily dependent upon the number of tweets the each follower had posted. Nonetheless, in Tibco Spotfire it is possible to receive the number of followers at the time of the most recent post for each user and reach a conclusion as had been mentioned earlier. Table 3 below shows a table of the ten users within the database that have the largest follower base. Figure 20 in Appendix B shows a modified version of Table 3 presented above, with more recent data added to show the development of the users of interest.

Table 3 Most Followers

Most followers | Top 10

Name	Tweets	Followers	Comments
HuffingtonPost	3	4,560,190*	Tweeted a picture taken onboard one of Icelandair's aircrafts of an erupting volcano below.
Sony	2	3,322,736*	An Icelandair customer posted a couple of photos from his Sony device. Both Icelandair and Sony interacted. Very cool!
TripAdvisor	1	1,932,601*	Tweet concerning the luxury travel agent Abercrombie & Kent originated from Luxe Tiffany.
JetBlue	4	1,905,721*	Answering customers concerning Icelandair and Jet Blue's codeshare and a Jet Blue delay that results in passengers missing a connecting flight with Icelandair.
LonelyPlanet	2	1,694,432*	Endorsing Icelandair's inflight video that draws inspiration from the incredible Icelandic landscape.
KLM	3	1,432,099*	Discussion with its customers about connecting flights with Icelandair
GuyKawasaki	6	1,425,281*	A positive discussion about wifi onboard. A problem that was fixed, and discussion attracted some attention.
Yahoo	1	1,376,830*	Hekla Aurora. Icelandair plane brings passengers the Northern Lights onboard.
Adventuregirl	2	1,367,296*	Tweets promoting Iceland and Icelandair.
AgentM	2	1,322,617*	Expressing his interest of visiting Iceland and flying with Icelandair.

Note. * Followers at the time of most recent post

Despite the fact that most of the users have only posted very few tweets, these tweets have the potential to go extremely far and be seen by an enormous amount of people. The leader in this category is Huffington Post with over 4.5 million followers on average and most of the occupants on the lists are organizations, apart from two users, Guy Kawasaki and Adventuregirl. Guy Kawasaki is an author speaker and chief evangelist of Canva, an Australian online, graphics-design service and executive fellow at the Haas School of Business in U.C. Berkeley. Kawasaki was the chief evangelist of Apple and wrote, for example, The Macintosh Way. Later he became an advisor to the Motorola business unit of Google and wrote numerous books, for example The Art of the Start and The Art of Social Media (Kawasaki, G. (2015). Kawasaki has an enormous influence on social media platforms, such as Twitter, and his discussion with Icelandair regarding wireless internet onboard caught the attention of many Twitter users. Kawasaki informed Icelandair on Twitter that he was unable to access the wireless internet onboard, which was then fixed before his return trip and Icelandairs' quick response sent out a positive wipe to the Twitter-world. According to Cha et al (2010), Guy Kawasaki is one of the most retweeted users on Twitter (Cha et al., 2010). Those users that generate high amounts of retweets are knowledgeable people in different fields, which others follow in substantial numbers and choose to retweet the content these users post.

The other individual to make the list was Stefanie Michaels founder of Adventuregirl.com, a website about everything related to travel. Michaels writes travel tips to the readers of New York Times, Access Hollywood, and People Magazine and sits on the list of Top 20 Branded Women Online published by Forbes (Michaels, S. (2015). Michaels stumbled upon Icelandair's new in-flight safety video, is amazed how it is influenced by the Icelandic nature and shares it with her followers. As well as encouraging her friends to visit Iceland and tagging Icelandair in the post.

Two airlines make the list, Jet Blue and KLM Royal Dutch Airlines, but their tweets simply show the airlines responding to their customers' questions regarding codeshare with Icelandair and connecting flights.

Table 8 in Appendix B shows a breakdown of the tweets posted by these most followed users and post variables.

Tibco Spotfire is well suited to find to find out which users within a specific database have the largest follower base, and also it allows coloring the users depending on the number of tweets that specific user has posted. Figures 17 in Appendix B illustrates how this can be executed where the size of squares represent the amount of followers and the color scale the number of tweets. On the other hand, Figure 18 in Appendix B presents the most active users where the size of the squares represents the number of tweets they have posted and the color the amount of followers.

4.3 Most common words used

Tag clouds, i.e. word clouds use a compact visual form of words to provide a content overview of a given website, text, document, etc. (Cui et al., 2010). This can also be applied to Twitter discussion and a content overview generated to provide insight into what people are discussing.

In order to determine what words were most commonly used in Icelandair's Twitter traffic the text in content column from the database was imported into a word cloud tool (Wordle.net) and word clouds created by counting the number of appearances for each word. However, with a clean dataset, it is also possible to perform this action in Tibco Spotfire for identical results.

4.3.1 Most common words used by Icelandair

The most common words used by Icelandair within the given database were mostly positive words, and negative words did not appear often. Words such as *great, hope,* and *thanks* are quite dominant, as Figure 15 in Appendix B illustrates, while negative terms such as *apologize, sorry,* and *inconvenience* appear to be used a lot less often.

4.3.2 Most common words used by consumers

As expected, there were some significant differences between the most common words used by Icelandair and those by consumers. I should not surprise anyone that the word that is used the most is *Iceland*, followed by *thanks* and *flight.* It was rather interesting to see the words that came in 4th and 5th, *Bardarbunga* and *passengers*. The fact that these two words were used so often relative to words like *Reykjavik*, can be related to one specific tweet. On the 3rd of September 2014, Icelandair posted a photo taken onboard one of its aircrafts of the erupting volcano Bardarbunga. This specific tweet caught the Twitter population's attention and included both of these words. When people were retweeting or posting this photo on their personal account, these two words tended to follow, in most cases. Also, there are two woman names scoring high on the list, *Erla* and *Vinsý*. Interestingly enough, those are the first name and middle name of the woman who took the successful photo and shared with Icelandair. It is safe to say that this tweet was a huge success and can serve as an example of tweets that have the potential to become viral as the content was both interesting and memorable. The word cloud for the most common words used by consumers is represented by Figure 16 in Appendix B.

4.4 Correlation between number of followers and number of retweets

Tibco Spotfires' visualization tools can give the user an idea if there is any correlation between any two variables of interest. Under normal circumstances, there should be some level of positive correlation between the number of user's followers and the number of retweets that specific user generates. However, when using the dataset provided in Tibco Spotfire the data shows no correlation, or negative in fact, between user follower count and retweets as the scatter plot in Figure 9 below illustrates. As mentioned before, the data within the dataset was extracted simultaneously, and therefore correct retweet and favorite

information is not available. Also, when a retweet is extracted into the database, the already cumulated retweets are associated with every single retweet, which explains why users with very few followers appear to have obtained a significant amount of retweets. That is most likely because these users retweeted a trendy tweet late in its lifecycle.

This figure presents the results if the aforementioned database is used and a correlation between the number of followers users have and the number of retweets they generate is examined. The X-axis represents the number of user followers and the Y-axis the number of retweets.
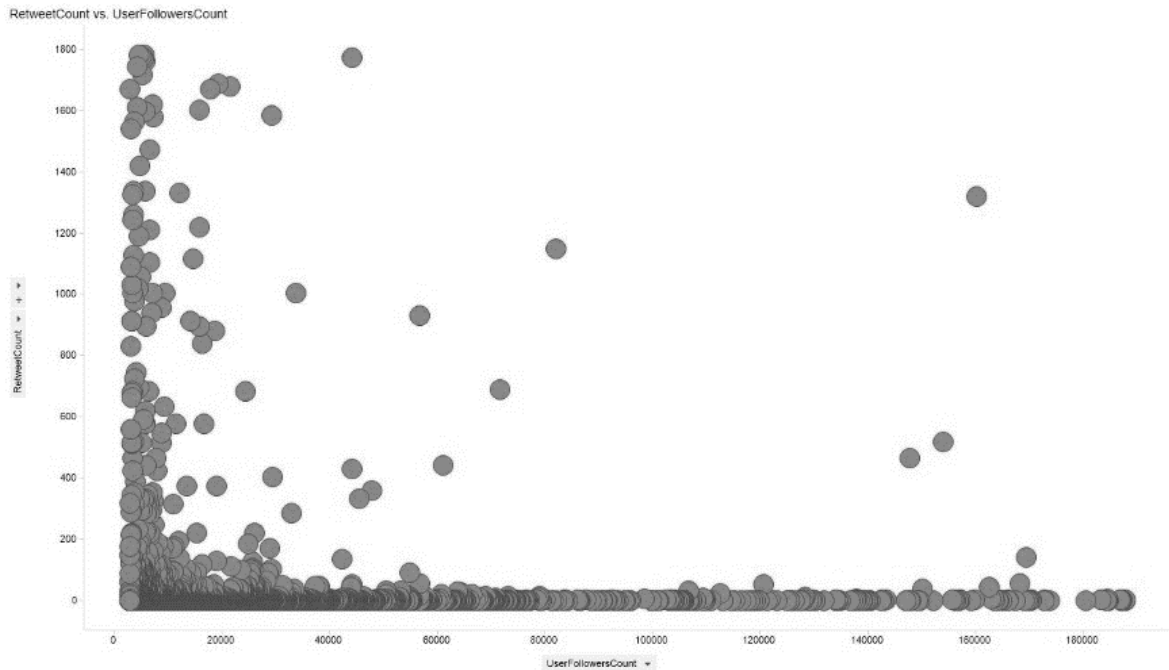

Figure 9 Followers vs Retweet Correlation

However, with a properly extracted dataset a correlation analysis could easily be conducted and should generate more realistic results than those presented above.

4.5   Languages

Icelandair services people from all around the globe, and therefore it is interesting to look into the language people use when discussing or communicating with Icelandair on Twitter. Tibco Spotfire offers an easy solution to analyze languages used within its software, which was used to generate the results.

As one might expect, English is by far the most common language used, followed by Icelandic and Spanish. 1.4 percent of the posts are categorized as undefined, which can be related to Twitter not being able to recognize the language due to lack of words or conflict between languages. For a pie chart of the breakdown of languages used refer to Figure 10 below.

The six most common languages are as follows with their respective percentage out of the total:

- English – 82.2%
- Icelandic – 4.2%
- Spanish – 2.4%
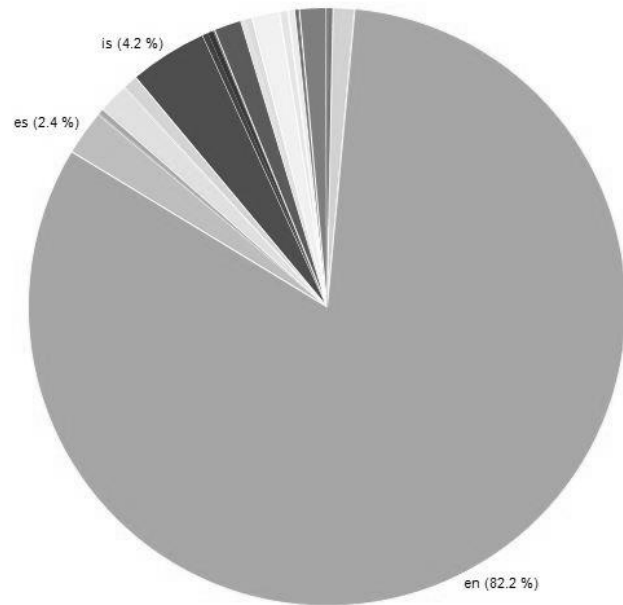- French – 1.6%
- Dutch – 1.5%
- Russian – 1.5%

Figure 10 Languages

4.6   Most influential users

The most significant or influential users can be determined by combining following elements; number of followers, Klout score accessed in Radian6 and Twitter likability. As mentioned earlier the database lacks accurate retweet and favorites data but the most followed users found within the database are as follows:

- Huffington Post
- Sony
- Trip Advisor
- Jet Blue
- Lonely Planet
- Guy Kawasaki
- Yahoo
- Adventuregirl
- AgentM
- ForbesTech

All of the users listed above have discussed Icelandair directly or indirectly and have therefore shown interest in discussing the company. The next step would be to figure out the Klout score for the following users in Radian6 and apply the twitter likability measure if an additional indicator is required.

4.7   Timing of tweets

The timing of tweets can be quite important if the tweets are to reach its intended audiences. Tibco Spotfire provides meaningful insight into this matter as Figure 11 below illustrates.

For some unknown reason, Twitter exports time of post according to GMT-1 time zone, and therefore, one hour should be added to the results to realize a given time in Iceland.
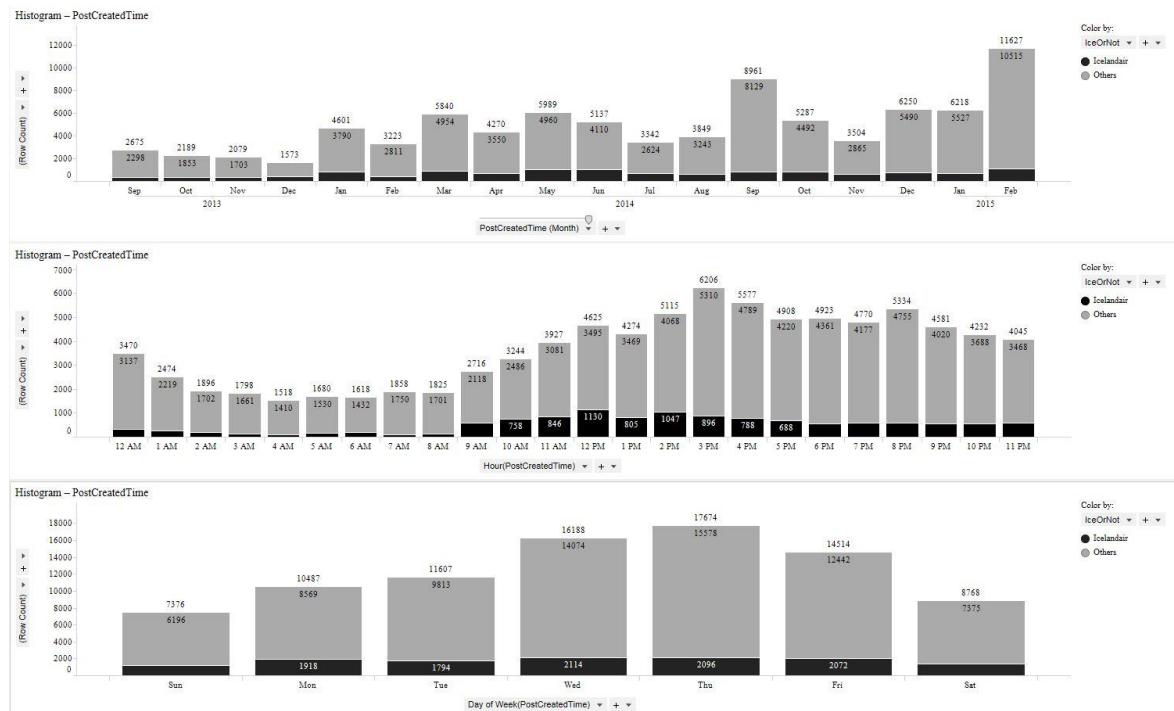
Figure 11 Timing of Posts

The results show that the amount of tweets posted concerning Icelandair varies quite a lot between months, and that last February is the month that generated the most traffic. The chart in the middle shows at what time of day tweets are being posted and as expected, the traffic lays low during the night and early morning, from 1 AM to 10 PM. However, the most traffic tends to be in the afternoon, around 3 – 4 PM. Also, according to the figure on the bottom, the traffic peaks on Thursdays, while it is a lot quieter during the weekends.

The figures below can be found individually in Appendix B (Figures 20, 21 and 22).

4.8   Software analysis

To sum up, the goal of the research was to realize the capabilities of Tibco Spotfire when it comes to enhancing Icelandair's social media marketing. A couple of theories were introduced earlier in the paper and those theories set out certain requirements and elements

needed in order to reach social media marketing success. The theories state, for example, that influential users should be identified in order to extend the reach of certain messages as well as several other required elements.

Table 4 below shows the requirements set by the theories introduced earlier and how the software meets the set requirements.

Table 4 Requirements and Capabilities

Tibco Spotfire Requirements and Capabilities

Requirements	Capabilities
Influential users	Allows to identify users with the most followers Allows to identify the most active users
Content	Determines what words are the most common However, not easier than other online word counting tools
Timing	When during the day are users talking about Icelandair? When should Icelandair expect the highest amount of participation?
Be easy to use	Easy to navigate Endless number of options User-friendly

5   Discussion

The research question: *"How can Tibco Spotfire enhance Icelandair's Twitter (micro-blog) marketing?"* will now be addressed by combining information from the theoretical background of the study and the findings from the data analysis research. The research has touched upon some theoretical requirements to be successful on social media platforms as well as how the available social media listening and data analysis tools, Radian6 and Tibco Spotfire, can assist with meeting these requirements.

Lon Safko (2012) mentions the Five Steps to Social Media Success *Analyze Your Existing Media, The Social Media Trinity, Integrate Strategies, Resources,* and *Implement and Measure*. Despite the fact that this is a very thorough list of actions in order to be successful on social media platforms, I believe that there is one very important action missing; monitoring. Monitoring social media platforms from day-to-day using a sufficient social listening tool, such as Radian6, where the user creates a dashboard where all the social activity concerning a pre-specified topic or brand can be monitored in real-time is extremely important. Consumers demand near-to-instant communication on social media platforms and monitoring the platforms decreases the chances of people not being answered in time or not at all. Also, if a discussion, negative or positive, emerges about the company or brand that requires the company's immediate attention, the company can step into the discussion effectively. This activity can prove to be valuable, since according to Okazaki and Taylor (2013) social media marketing is categorized as a low cost medium compared to traditional marketing but has the potential to generate same, if not better, results (Okazaki & Taylor, 2013).

Buhalis and Law (2008) state in their article, due to the constant innovation in software and network development, that dynamic organizations that are quick-learners and open-minded towards new technology should be able to outperform their competitors and maintain their position within a specific industry (Buhalis & Law, 2008). This statement emphasizes the importance of adopting new technology in business operations and accept the continuous learning process when it comes to technology. By doing so, the company can gain competitive advantage and stay ahead of the competitors (Porter, 1980).

As stated in the results chapter, English is by far the most common language used on Twitter when it comes to topics concerning Icelandair. According to David Crystal (2021) English is becoming more acceptable in most places of the world, and people realize that if they are to be able to communicate across borders, English is normally an essential tool to do so (Crystal, 2012). The small portion of the database, which was not in English nor Icelandic, were discussions that were not directly targeted towards Icelandair. People tend to accept that if they are to communicate with individuals or companies that they do not share a language with, English is the way to go. Therefore, language capabilities, other than English and Icelandic, are not required when it comes to customer relationship management (CRM). However, it might be beneficial when it comes to analyzing ongoing discussions about the company or brand.

The most active users on when it comes to tweeting about topics of Icelandair's concern were listed earlier in the paper. The majority of these users had a relatively small follower base, according to the database, but due to their activity and willingness to share information and messages about the company they could turn out to be somewhat influential. As mentioned earlier, the calculations for the follower base was executed by determining the average number of followers at the time of each post and to the speculation of how these users had improved, i.e. how fast their follower base was increasing. Table 6 in Appendix B shows the previously presented table with added data obtained from the users Twitter pages.

Influential users, or social hubs, have been mentioned throughout the paper and the ones that could be found within the database described. However, it is not necessary for companies to limit their possibilities to users found within a specific database that was gathered during a specific time period. According to Kwak et al (2010), many of the most influential people on Twitter are musicians or athletes and do these users attract enormous amount of attention whenever they show some activity on the media (Kwak et al., 2010). This shows that creating an alliance with musicians or athletes can provide substantial coverage on Twitter. Iceland has many flag-carriers around the world that fall into these categories, such as Of Monsters and Men and Hafþór Júlíus Björnsson, 3rd strongest man in the world (Winter, 2015). These users, and many others, would most likely be willing to engage in a multi-beneficial alliance with Icelandair on Twitter.

5.1   Most significant findings

One of the most significant findings of this research is that a researchers hands are tied if the data is inaccurate. According to Bellenger (1979), a qualitative research is only as good as the research participants and the same can be applied to quantitative research, which is never better than the data researched. Therefore, it is important to utilize appropriate and complete data when it comes to conducting a research based on data analysis (Bellenger, 1979).

However, despite the inaccurate dataset it is safe to say that Tibco Spotfire receives a passing grade from the author for being successful to identify and execute the variables of interest. Therefore, it would be a valuable asset when it comes to analyzing social media efforts for Icelandair, or any company, in fact.

5.1.1   *Tibco Spotfire and Radian6*

The aim of the thesis was to answer the research question, *"How can Tibco Spotfire enhance Icelandair's Twitter marketing?"* with a focus on the software recently acquired by Icelandair and the theories put forth earlier in the paper.

It is safe to say that Tibco Spotfire and Radian6 are two products that complement each other when it comes to managing an organization's Twitter account, or social media accounts in general. Radian6 is well suited for day-to-day monitoring and minor data research that does not require a large amount of historical data, while Tibco Spotfire is designed to handle large databases and allow the user to analyze and visualize in a user-friendly manner.

5.2   Limitations of Study

When a research is conducted, it is important for the researcher to report any limitations to the research, rather than having the limitations pointed out after publication, which might hurt the paper's validity or reliability (Price & Murnan, 2004). In this paper there are several issues that can be considered as limitations to the study:

- Tibco Spotfire is a new and relatively unknown product
- The database provided by Icelandair is inaccurate
- The research is solely dependent upon two social media theories

Due to the fact that Tibco Spotfire is a relatively new product and I had no prior experience using it, limits the validity of the study to some extent. Despite having spent endless amount of time navigating the software, I am only familiar with a fraction of the possibilities it has to offer due to the number of options and possibilities that can be found within the software.

As mentioned numerous times in the paper, the data within the database does not provide accurate information which are essential to identify the most influential and successful users, due to the fact that the data is extracted to soon and not given time to evolve. Therefore, the numerical results are to some extent inaccurate but it has no effect when determining the capabilities of the software itself.

The research is solely dependent upon the two social media theories mentioned earlier, The Five Steps theory by Lon Safko and the conditions for viral marketing campaigns introduced by Andreas Kaplan and Michael Haenlein. Therefore, the research only aims to determine whether the software meets the requirements made by these two theories, whilst other theories are not taken into account.

5.3   Suggestions for further research

As usually when a research is conducted more questions arise than are actually answered. The question whether there are any professionals in Iceland, excluding Icelandair staff, that are using Tibco Spotfire frequently or have some experience with the program. If so, what is their opinion of the software and of these kind of tools in general? Are most Icelandic companies monitoring their social media accounts with the help of social listening tools or analyzing available data to improve social media marketing efforts? A qualitative or quantitative study could be conducted aiming to answer these questions, and the author of this paper would be extremely interested in reading that research.

As mentioned earlier, the research approach employed is a software analysis approach but could easily be followed with an extensive quantitative research approach. Aliaga and Gunderson (2006), define quantitative research as the activity of '*Explaining phenomena by collecting numerical data that are analyzed using mathematically based methods'* (Aliaga & Gunderson, 2006). The software allows the user to upload rows of data and analyze in countless number of ways, for example correlation between the variables. A demonstration of a scatter plot to determine the correlation between the amount of followers and the amount of retweets was displayed earlier in the paper, but with no significant results due to the inaccuracy of the dataset. However, with an accurate dataset, it would be interesting to see how the findings would turn out.

When a research is to be conducted, quantitative or qualitative, the researcher is always looking to explain something specific with an answer to a predefined research question and quantitative research aims to do so by utilizing numerical data (Balnaves & Caputi, 2001) and therefore, a new research question needs to be put forth before a quantitative research is conducted.

6   Conclusion

As mentioned throughout the paper, social media is an emerging concept when it comes to business and marketing. Companies, all over the world, are putting increased effort into these new communication platforms due to its world-wide acceptance and usage among customers. Social media platforms have, for example, revolutionized how consumers gather information about travelling options and user generated content (UGC) provided by other customers on these platforms often play a vital role in the decision making process. However, it is important to be as effective as possible on these platforms in order to generate the desired results. That is why companies need to implement certain rules and objectives to keep in mind when operating on social media platforms. The paper introduces two theories from two different perspectives, as examples of rules and objectives companies need in order to be successful. One of the theories discusses the importance implementing an appropriate strategy and measure results, whilst the other focuses on how the external environment on these social media platforms can be utilized for the better.

The aim of the research was to examine a software, Tibco Spotfire, recently acquired by Icelandair in detail and determine if and how it can help the company enhance its social media marketing efforts. The aforementioned theories list out variables and elements of interest and the research explores if Tibco Spotfire can identify and implement these elements. As it turns out, the software is well capable of identifying these elements in a relatively user-friendly manner and generate meaningful information for social media managers concerning future social media efforts.

However, in order to maximize the gains from the results, Icelandair must be able to extract and access accurate data and according to the author's knowledge, the company is currently in the process of developing an effective method to do so by utilizing Twitter API.. If successful, the company can follow the steps of the research and generate more accurate and meaningful results that can confirm that the company's social media marketing efforts are on the right track or serve as guidelines to guide it in the right direction.

6.1 Additional Measure: Social media likability

When it comes to measuring the real influence of a specific user, several means of measuring currently exist, such as the Klout score (Anger & Kittl, 2011) mentioned before. However, when navigating through information about the measure, the author was convinced that it would be of value to have an additional measurement to either compare or combine with the Klout score. Therefore, the author started developing the social media likability measure, which measures the activity or the tendency of a users' followers to take action in regards to the posted messages and has not been introduce elsewhere, to the best of the authors knowledge. The measure takes the weighted average of the amount of retweets and favorites a user has received divided by the total number of followers. A specific time frame of data needs to be determined and then, users compared as shown in Table 5 below.

Table 5 Social Media Likability

Example of Social Media Likability Measure

User	Tweets	RT*	Fav**	Weighted AvgRTFav	Followers	Likability
A	6	195	118	48.233	2132	2.262%
B	11	348	207	46.691	1749	2.670%
C	7	548	128	92.914	1420	6.543%

Note. * RT weight = 1, ** Fav weight = 0.8

The social media likability measure provides the insight into which Twitter users are generating high level of activity on their posts, defined as a percentage of their followers. This helps distinguishing the real influential users from the ones that have a large amount of followers without attracting any real attention.

The weights of the variables, retweets (RT) and favorites (Fav) are determined by the functionality of the two actions. Retweets play a key role when it comes to information diffusion on Twitter as it extends the reach of a specific tweet as every user that chooses to retweet a certain tweet displays it to all of its followers, which often initiates chain-reaction. Also, retweets are simply one example of mentioning, which is when a specific username is

posted, following a @-symbol, for example @icelandair. Everytime a user is mentioned, his username is posted and given the opportunity to reach a great number of people (Suh et al., 2010).

On the other hand, the favorite function was originally intended to serve as a bookmark on Twitter. However, the function is starting to evolve into something similar to the like-function on Facebook but when a tweet is favorited it does not extend its reach in anyway but simply saves the tweet under the favorite-tab of the user who favorited. Nonetheless, the number of favorites have been related to the reliability or popularity of users and the higher number of favorites a specific tweet possesses, the more positive reactions it will attract among viewers (Gorrell & Bontcheva, 2015). Therefore, I have given retweets the weight 1 and favorites 0.8 within the measuring indicator mentioned above to increase the accuracy of the user likability and influence.

There are two different fractions of the twitter likability scale, *general likability* and *specific likability.* Both of the fractions have the same functionality but the data measured is what differs. The general likability covers all tweets posted by a certain user, within a predetermined time frame, whereas the specific likability only covers tweets related to a specific topic. The data for general likability is obtained from the users twitter account and is easy to approach. However, it has to be obtained manually and can therefore, be time consuming, depending on the users activity and the length of the time frame. The data for specific likability is obtained from a database, similar to the one provided by Icelandair, but it has to allow the tweets to mature and fulfil their potential rather than extracted simultaniously. Within that database are only tweets related to a specific topic and can therefore measure the specific likability.

6.2   Implications for management

The results benefit social media managers of Icelandair, as well as social media managers in general. The results show that Tibco Spotfire can be very useful when it comes to analyzing a dataset extracted from social media platforms and that the software has a role in a company's social media marketing improvement process. The research shows different features of the aforementioned software as well as two theories that in the author's opinion

explain today's social media marketing environment quite well. However, it is up to the readers how this information is interpreted and whether everything under consideration is taken into account, but according to the two social media theories, Tibco Spotfire has the ability to improve social media efforts and maintain good performance.

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8   Appendix A – Social Media

Figure 12 Five Steps to Social Media Success (Safko, 2012)
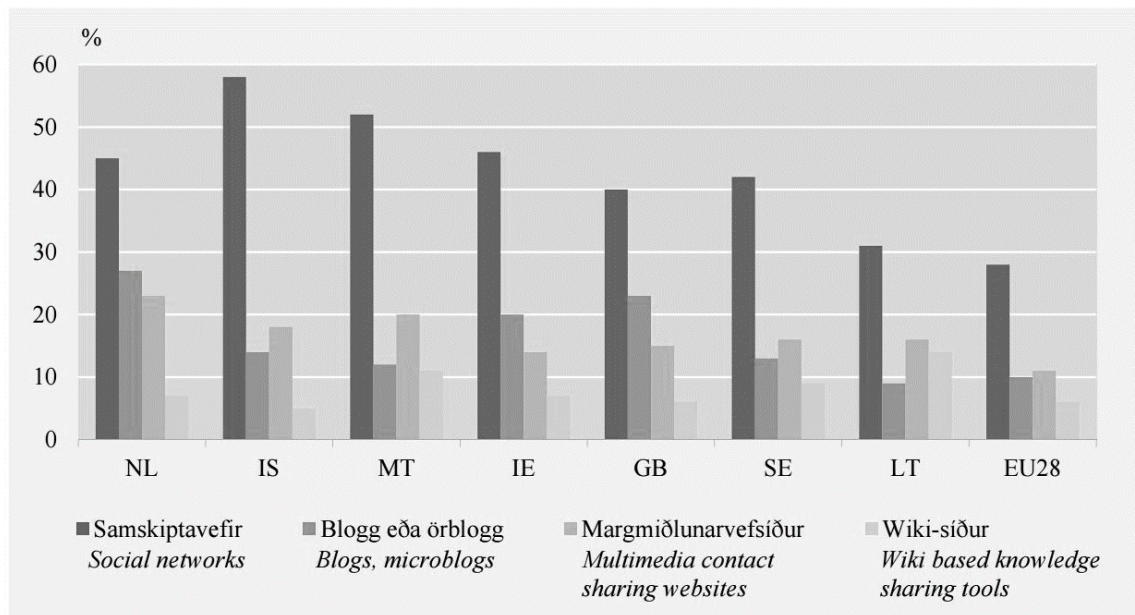
The highest usage of social media among enterprises in Europe

Figure 13 Social Media Usage (Statistics Iceland, 2014)
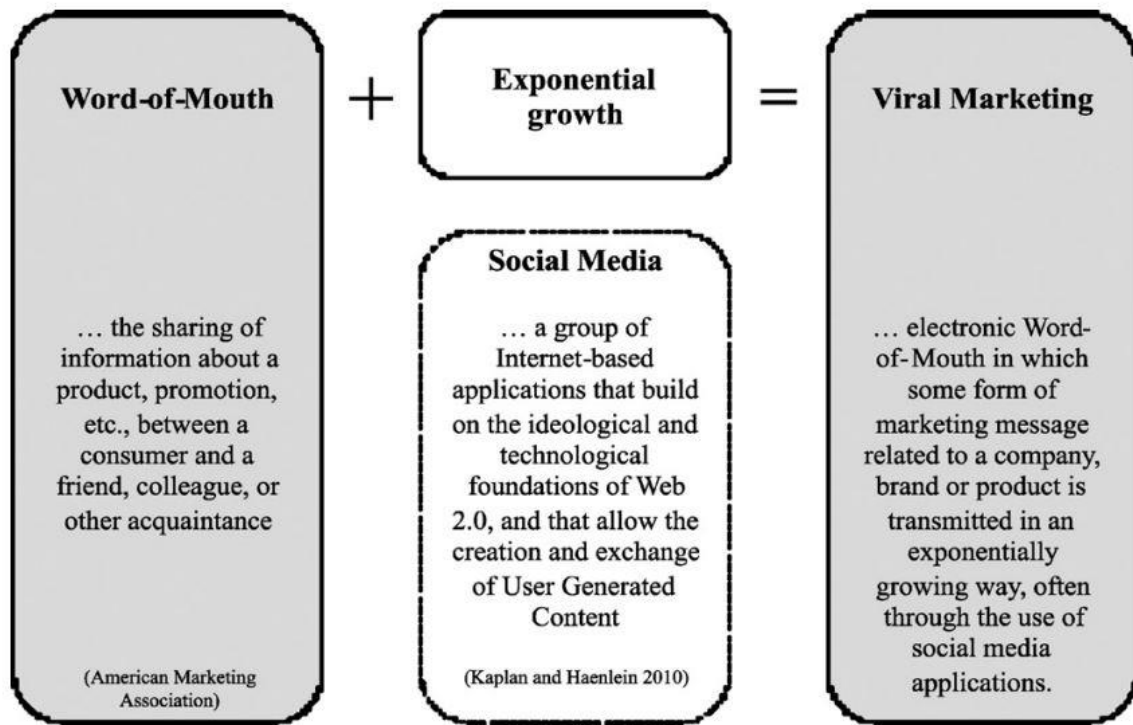
Relationship between word-of-mouth and viral marketing

Word-of-Mouth	+	Exponential growth	=	Viral Marketing
... the sharing of information about a product, promotion, etc., between a consumer and a friend, colleague, or other acquaintance		**Social Media** ... a group of Internet-based applications that build on the ideological and technological foundations of Web 2.0, and that allow the creation and exchange of User Generated Content		... electronic Word-of-Mouth in which some form of marketing message related to a company, brand or product is transmitted in an exponentially growing way, often through the use of social media applications.
(American Marketing Association)		(Kaplan and Haenlein 2010)		

Figure 14 Word-of-Mouth and Viral Marketing (Kaplan & Haenlein, 2010)

9 Appendix B - Analysis

Figure 15 Most Common Words Icelandair

Figure 16 Most Common Words Others

Table 6 Most Active Followers Current

Most active users | Top 10

Name	Tweets	Followers *	Comments	Followers 4/15/2015	Change	% Change
FlyEIA	367	19,491	*Edmonton International Airport. Active in regards to retweets from airlines.*	20,238	747	3.8%
Cool Iceland (icelandcool)	277	979	*A source of retweets about Iceland. A small follower base = rather uninfluential.*	1,095	116	11.8%
Tiny Iceland	237	8,593	*www.tinyiceland.com is a website with articles, tips, videos, etc. About Iceland. Mostly retweets.*	8,798	205	2.4%
Kinolina	172	1,614	*Eric, an individual from Seattle. Mobile web developer. Active Twitter-user. Relatively small follower base.*	2,007	393	24.3%
Realfamilytrips	171	5,035	*A platform for users to share their travel experiences with others and assist with travel decision making.*	5,915	880	17.5%
ReykjavikStyle	166	1,047	*Icelandic fashion platform that auto-retweets the hashtags #Reykjavik, #Iceland and #Icelandic. Relatively small follower base and most likely rather irrelevant.*	1,115	68	6.5%
SocialReykjavik	139	938	*Auto-retweets some tweets posted in Reykjavik from both individuals and companies.*	1,059	121	12.9%
Where's #HeklaAurora	131	81	*A Twitter account created solely around Hekla Aurora and posts information about its current and future locations. Retweets Icelandair tweets concerning the specific aircraft. Extremely small follower base.*	96	15	18.5%
Minijupe69	121	603	*A woman located in France. Visits Iceland regularly and tweets in French. Very small follower base.*	596	-7	-1.2%
Whoflies	121	73	*A platform that provides latest travel and airport information. Very small follower base.*	134	61	83.6%

Note. Followers* = Followers at the time of most recent post

Table 7 Most Followers Current

Most followers | Top 10

Name	Tweets	Followers *	Comments	Followers 4/15/2015	Change	% Change
HuffingtonPost	3	4,560,190	Tweeted a picture taken onboard one of Icelandair's aircrafts of an erupting volcano below.	5,571,992	1,011,802	22.19%
Sony	2	3,322,736	An Icelandair customer posted a couple of photos from his Sony device. Both Icelandair and Sony interacted. Very cool!	3,456,160	133,424	4.02%
TripAdvisor	1	1,932,601	Tweet concerning the luxury travel agent Abercrombie & Kent originated from Luxe Tiffany.	2,193,831	261,230	13.52%
JetBlue	4	1,905,721	Answering customers concerning Icelandair and Jet Blue's codeshare and a Jet Blue delay that results in passengers missing a connecting flight with Icelandair.	1,926,909	21,188	1.11%
LonelyPlanet	2	1,694,432	Endorsing Icelandair's inflight video that draws inspiration from the incredible Icelandic landscape.	2,371,847	677,415	39.98%
KLM	3	1,432,099	Discussion with its customers about connecting flights with Icelandair	1,705,429	273,330	19.09%
GuyKawasaki	6	1,425,281	A positive discussion about wifi onboard. A problem that was fixed, and discussion attracted some attention.	1,451,289	26,008	1.82%
Yahoo	1	1,376,830	Hekla Aurora. Icelandair plane brings passengers the Northern Lights onboard.	1,393,177	16,347	1.19%
Adventuregirl	2	1,367,296	Tweets promoting Iceland and Icelandair.	1,360,914	-6,382	-0.47%
AgentM	2	1,322,617	Expressing his interest of visiting Iceland and flying with Icelandair.	1,326,178	3,561	0.27%

Note. Followers* = Followers at the time of most recent post

Table 8 Most Followers Tweet-table

UserName	PostContent	Photo	PostCreatedTime	Lang	Follow	RT	Fav
HuffingtonPost	Here's what an erupting volcano looks like from an airplane "http://t.co/ahZeIY22x7"	Yes	2014-09-07 05:37:05.000	en	4560190	52	40
HuffingtonPost	Here's what an erupting volcano looks like from an airplane "http://t.co/ahZeIY22x7"	Yes	2014-09-06 05:45:06.000	en	4556206	55	51
HuffingtonPost	Here's what an erupting volcano looks like from an airplane "http://t.co/9oWna5n3gc"	Yes	2014-09-04 18:10:07.000	en	4548805	45	37
Sony	@_AndyBest @Icelandair Beautiful.	No	2015-02-23 22:40:44.000	en	3322736	0	4
Sony	@_AndyBest @Icelandair Great photo.	No	2015-02-22 02:29:32.000	en	3318377	1	1
TripAdvisor	That's traveling in style! RT @LuxeTiffany @theSmartFlyer Really want to see Iceland. The @Icelandair crew on the #AKprivatejet was amazing!	No	2015-02-11 17:28:34.000	en	1932601	1	12
JetBlue	@wesr79 Not currently, Wes. Flights must be booked through Icelandair or a travel agent. Thanks for asking!	No	2015-02-06 15:50:26.000	en	1905271	0	0
JetBlue	@MrsTampa No current plans for point sharing and tickets must be purchased through Icelandair or travel agent. Thanks!	No	2015-02-06 15:40:08.000	en	1905270	0	0
JetBlue	@jsalowe @Icelandair We were just going to ask if you knew which airline she worked for. :-) Either way, we're glad she was there for you!	No	2014-11-26 08:55:16.000	en	1875418	0	1
JetBlue	@cwhitlock14 @Icelandair Oh no! We know it's frustrating when a flight sits on the tarmac. For safety we can't take off without clearance.	No	2014-08-14 01:33:39.000	en	1841575	0	0
lonelyplanet	RT from Telegraph Travel: How about this! Pilot takes detour so passengers can see #Bardarbunga eruption @Icelandair http://bit.ly/1IJjVS0	Yes	2014-09-04 11:12:54.000	en	1694432	328	200
lonelyplanet	@Icelandair's new inflight safety video draws inspiration from the incredible Icelandic landscape: http://bit.ly/1rPCu9r #travel #lp	Video	2014-06-06 02:00:38.000	en	1568811	8	8
GuyKawasaki	@CataloniaValenc @Icelandair Iceland to Norway worked just fine!	No	2014-09-18 08:58:20.000	en	1425281	0	0
GuyKawasaki	@Icelandair I'm on right now. Thanks for fixing. Was it me?	No	2014-09-17 09:03:21.000	en	1425085	0	0
GuyKawasaki	.@Icelandair The 7 Euros don't matter. I just love that you offer this service. I'm Global Service on UAL and have to pay every time.	No	2014-09-17 03:35:14.000	en	1425077	3	2
GuyKawasaki	@Icelandair I'm going to try on my next leg from Iceland to Oslo in a few hours. :-) Z56WM3	No	2014-09-17 03:41:03.000	en	1425077	0	0
GuyKawasaki	Great idea: free Wifi for business class. But @Icelandair, my conf # and name didn't work.	Yes	2014-09-17 02:55:25.000	en	1425070	7	6
GuyKawasaki	@brianpeddle @Icelandair Be my guest. :-)	No	2014-09-17 02:57:46.000	en	1425070	0	0
Yahoo	Want to see the Northern Lights? A new @Icelandair plane brings them to you onboard http://yhoo.it/1zXDACD	Yes	2015-02-07 00:22:21.000	en	1376830	21	30
adventuregirl	So, at first you think this is going to be the same old- same old then it isn't http://bit.ly/1mSiYST #iceland	Video	2014-06-04 14:54:29.000	en	1374884	2	2
adventuregirl	@milhouse282 @IcelandNatural @Icelandair @usembreykjavik You should go back and visit= remarkable country!	No	2014-11-21 02:01:41.000	en	1367296	0	1
AgentM	After hearing about @CBCebulski's vacation in Iceland, I really want to go to Iceland. And @icelandair seems solid.	No	2014-05-12 20:22:04.000	en	1322620	0	6
AgentM	@Bainst06 @CBCebulski @Icelandair Nice	No	2014-05-12 20:36:58.000	en	1322617	0	1
ForbesTech	A small volcanic eruption has been spotted in Iceland, but hasn't impacted air travel yet: http://onforb.es/1u4vXEN	Yes	2014-08-29 13:27:34.000	en	1322077	19	7

Figure 17 Most Followed Users by Size and Color

Figure 18 Most Active Users by Size and Color
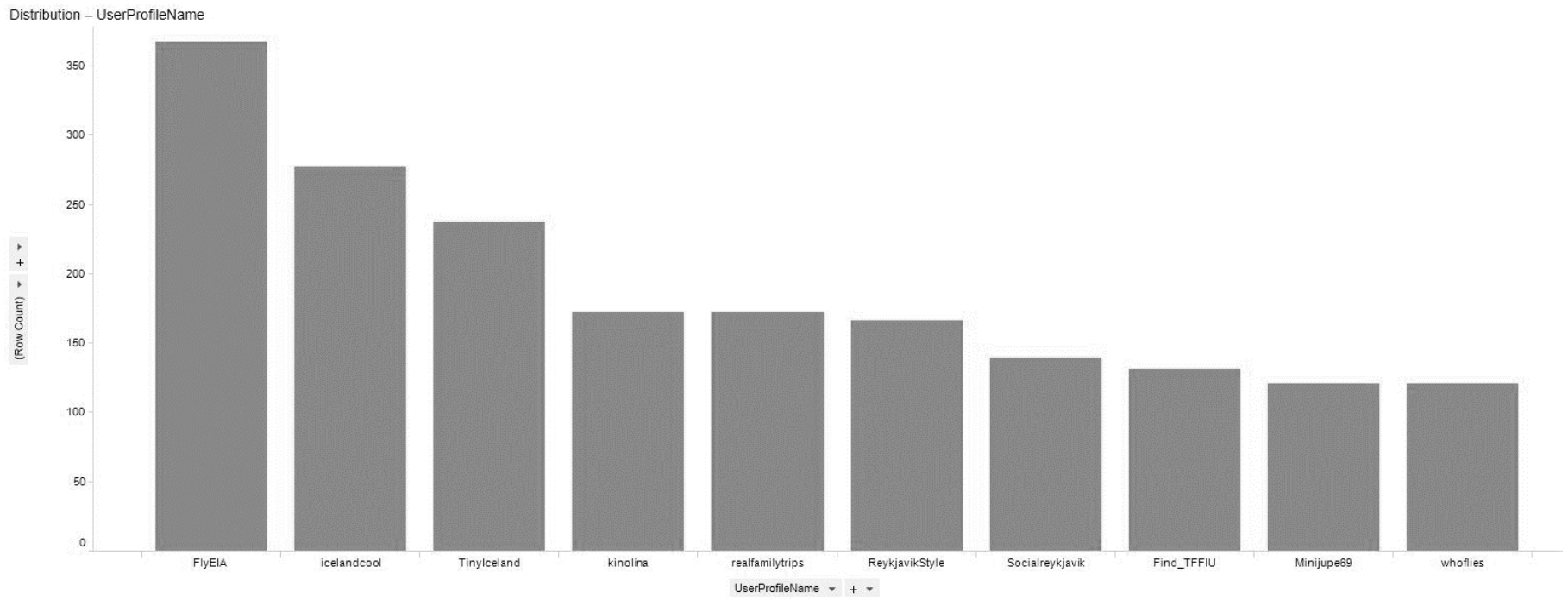
Figure 19 Most Active Users Bar Chart
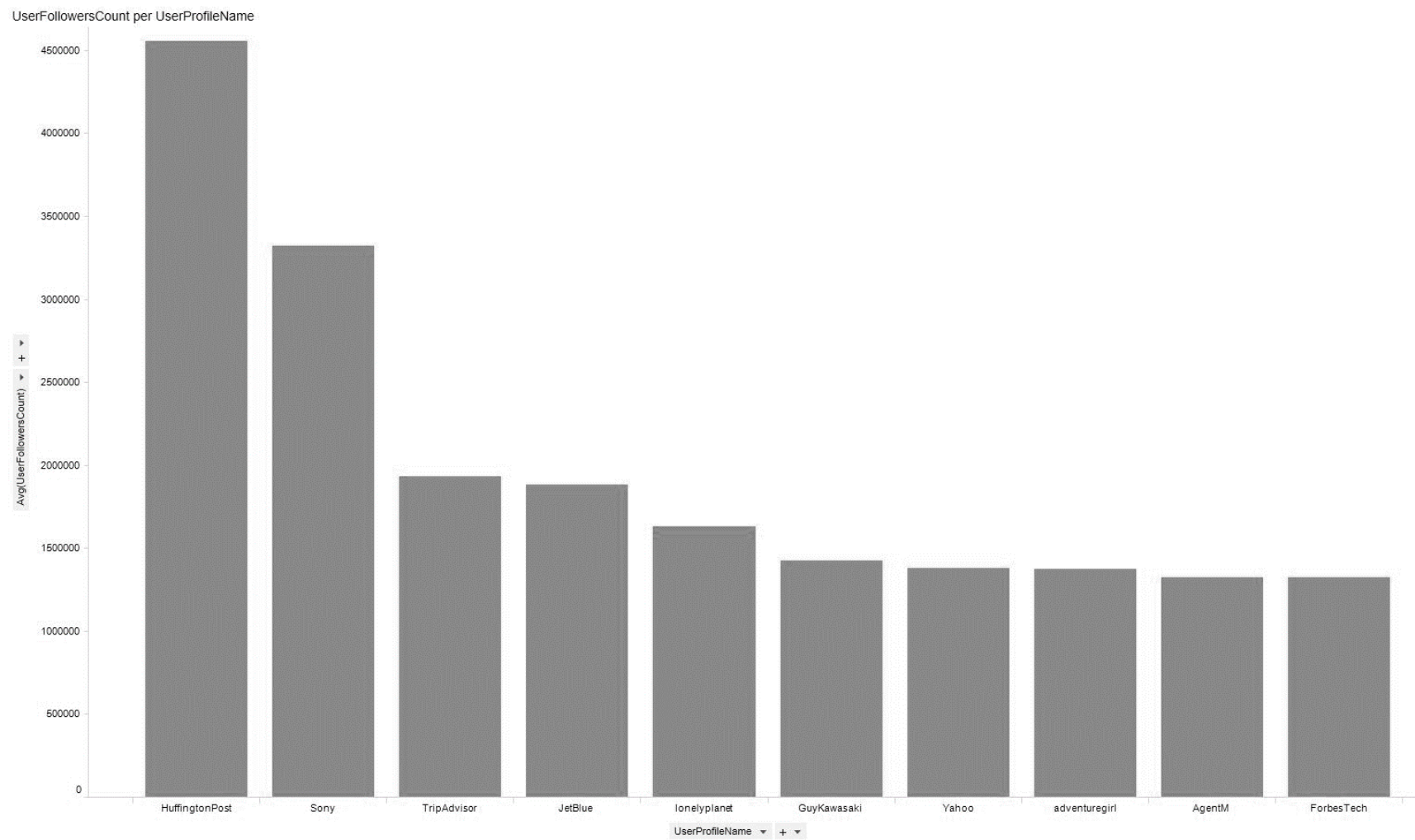
UserFollowersCount per UserProfileName

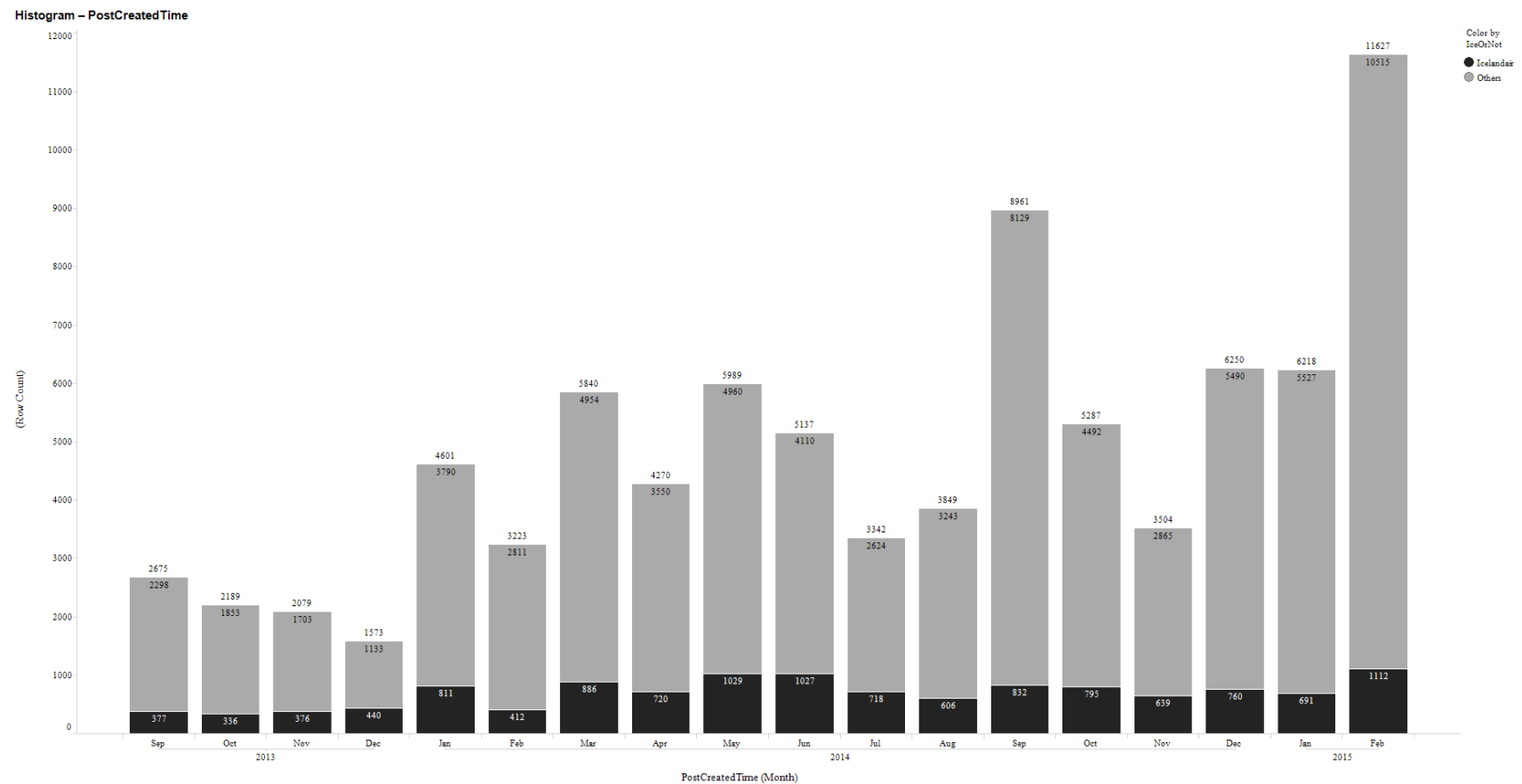**Figure 20 Most Followed Users Bar Chart**
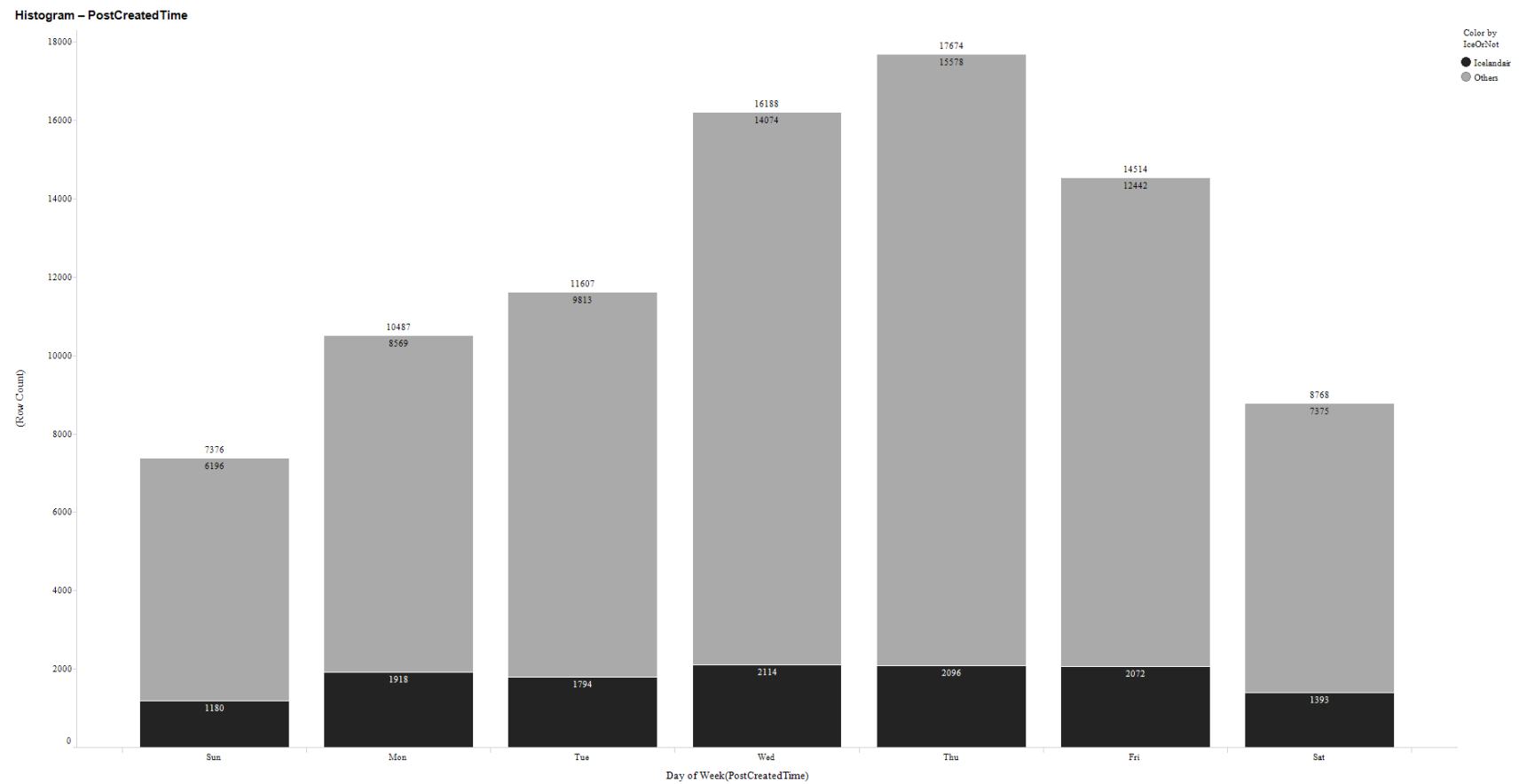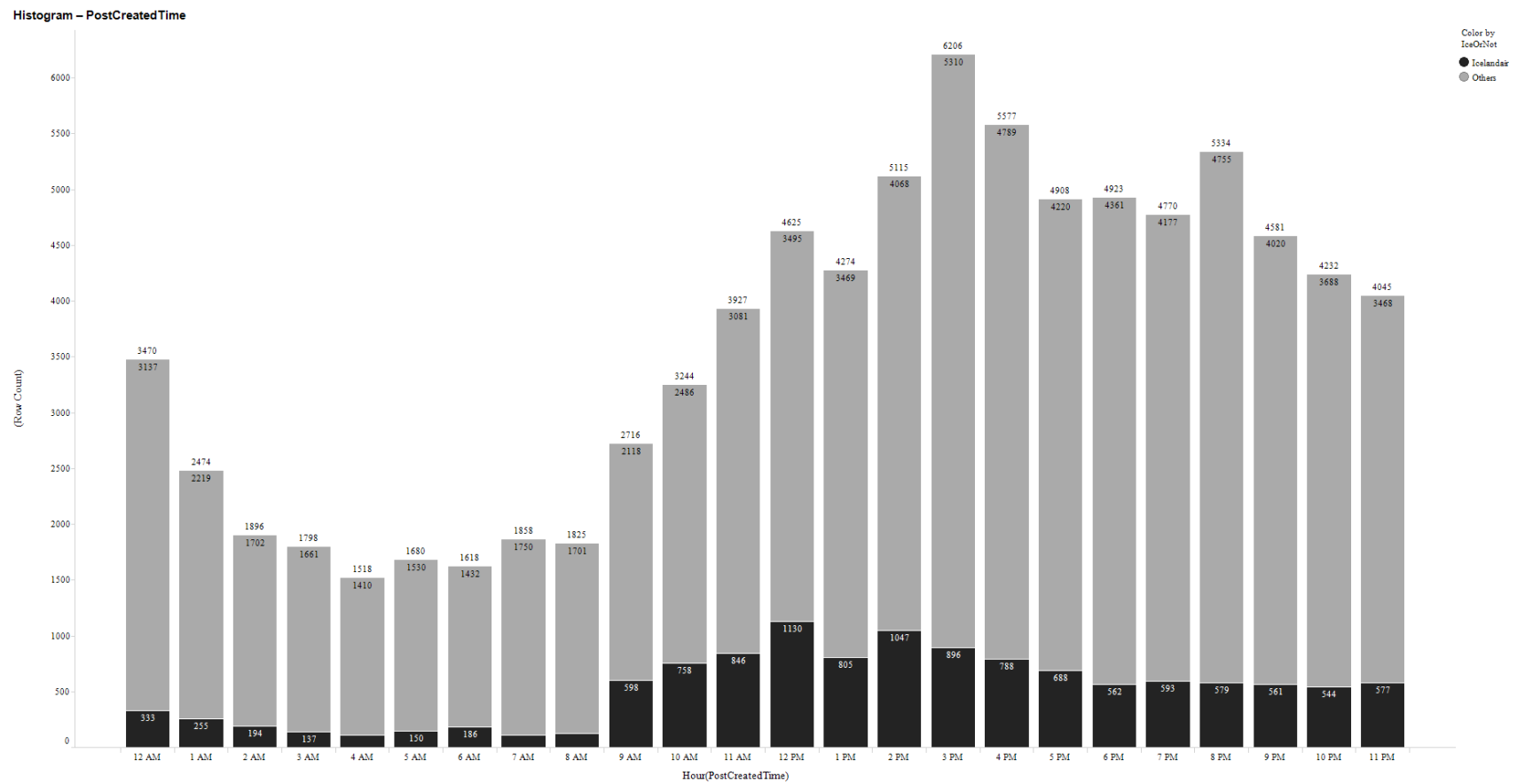
Figure 21 Timing of Tweets by Month

Figure 22 Timing of Tweets by Weekdays

Figure 23 Timing of Tweets by Hour