The Effectiveness of using Big Data from Social Media in Marketing

INTRODUCTION

Social media has changed the way businesses think regarding marketing their products because of the content that is derived from the social sites. Through social media, companies have come to accept that everyone has individually perceived thoughts towards their products and social media is where such opinions are mostly expressed. Social media analytical tools, help the companies get aquatinted with the feedback to what is happening online. Further, through the analytical tools, the firms can predict accurately what the customers want and helps them handle competition. The section looks at the different analytical tools that are used in the interpretation of the data that is sourced from social media. The effectiveness of the tools is also discussed as it relates to the predictive models that are used to prepare companies for handling both customer behavior and attitudes towards their products.

Research Questions:

1. What analytical tools are used in the interpretation of big data in social media?

2. How effective are the analytical tools used in the interpretation of big data in terms of Predictive Models?
LITERATURE REVIEW

Overview of the Analytical Tools

To be able to analyze the value of information being generated from social media, the users of the large data in social media users use different tools so as to have a sense of reality. Various social media analytics tools are often divided into categories which will be covered in the research since the tools are used to perform different functions. There are scientific programming tools that are used to source, search and analyze text e.g. MATLAB, business toolkits that are used for commercial purposes allowing the users to source, search and analyze text e.g. SAS Social Media Analytics. There are also social media monitoring tools that are used for sentiment analysis, that is, tracking and measuring people’s feelings concerning attitudes towards a company’s products or various topics that can be found across the social media landscape e.g. Google trends. Lastly, text analysis tools that are broadly employed for natural language processing and text analysis e.g. Social View.

Social Media Analytical Tools

Scientific Programming Tool: MATLAB

It was created by Math Works, Inc. The company has created some toolboxes that can be downloaded by users to use MATLAB for specific needs. It is a tool that is mostly used for data processing and data modeling and is used to perform various analyses e.g. time-series analysis. It is a programming language tool and is usable over a range of applications. Its complex algorithm has many properties that make it a useful tool in analysis. It can be used to source for data from databases, Hadoop, audio streams, sensors, files, web archives, spreadsheets, and other instruments. However, data from all of these sources is often full of errors, outliers, duplicates and noise. MATLAB can
preprocess the data and clean it by employing preprocessing techniques such as advanced signal processing that is used for eradicating noise from sensor data; image processing that sharpens images while isolating objects of interest; and feature selection, extraction, and transformation that reduces the dimension of the sourced datasets.

**Business Toolkit: SAS Social Media Analytics**

It was developed by the SAS Institute Inc. headquartered in the United States. The tool is an on-demand product that usually integrates archives, analyses, and reports on the online conversations that take place across different sites including social media. It is a tool that is used by businesses to understand the effects that the conversations have on some specific aspects of their businesses. The tool is used to link different sentiments expressed across the social media to specific business issues that allow for effective monitoring and an accelerated response to the shifts that take place in the market. The tool is designed in such a way that it helps the users to go deep into the conversations that happen in social media and other channels effectively helping them to collect and archive data sourced from social media such that the users of the data can understand the trends. It also aids in predicting future trends through conversations that help inform business results, help its users gain insights through its workflow and integrated routing features, and finally adjusting the sentiments that are applied to the source documents. The tool is customizable to fit a business's unique challenges because it is built as an enterprise hosted and on-demand solution.

In helping the users capture and retaining what customers say about their business, through internal CRM systems from the tool, it equips the user with some capabilities to achieve the capturing and keeping of data. The skills employed by the tool are those that help in collecting, integrating and storing the online conversations and customer transcripts that allow for greater insights into making sense of the conversations about what is being said, for
example, concerning a company’s products or services. The tool also provides the critical link between conversations and products especially for a business that helps them assess the overall business performance. The tool achieves this by being able to select the topics, media sources and conversations that need to be analyzed and further chooses how to classify them. The effect of creating the link ensures that the users can determine which topics are relevant to consumers, and the perceptions that can be associated with a particular brand. The tool also operates via an opens system to its users whereby it allows the users to have access to the system that determines sentiment. The workbench designed for the system allows the users of the tool to determine how the source documents were scored and gave them the ability also to override the sentiments in case the language used is not adequately captured. Finally, timeliness is a key element in the tool as it is preloaded with some modules that are designed to capture the most common issues occurring in the online and social media space.

**Social Media Monitoring Tool: Google trends**

It is a free web tool offered and created by Google Inc. it uses a time series index through assessment of the number of queries that are entered into Google in a particular geographic area. It is a powerful monitoring tool that is mostly used in monitoring consumer interests in line with competitive metrics and several factors that include seasonality. It is equally compelling when it comes to extracting information as well as insights that consumers gain by segmenting the data they receive even further. One of the major advantages of using the tool is the fact it is based on the world’s most trusted search engine that can generate information on even historic behavior. Google trends is derived from Google’s search data and is a historic representation of the vast number of searches conducted on Google. As indicated above, the tool creates indexes that show what is trending instead of the actual volume of data and is very helpful in gaining actionable insight. For the user, it is relatively straightforward to use as one begins by entering a search item in the query
box.

The tool further offers some filtering options that helps in narrowing the results of the data. The several filters comprise of region that helps one define searches from the world over down to a specific area, time frame that lets a person choose predefined time frames or let them set a custom period that allows dates as far back as 2004. Another filter is categories that allows a person to limit the terms and search volume confined to a particular category. Finally, engines that lets one chose between news, web video and shopping search, which offer great flexibility in terms of brand and helping a use concentrate on the right intent. After the search, the results ae broken down into two separate graphs, one that shows the historic trends and another depicting localized behavior according to one’s region. The tool also allows the user to export raw, granular data for each location and date into a CSV file that allows data to be saved in a table structured format.

**Text Analytics Tool: Social View**

It is a tool that is developed under the partnership of two companies, that is, Open Amplify and Visual Intelligence aimed at dynamic analysis of social media conversations. It draws insight from the massive amounts of data that are generated from different social media sites. From Visual intelligence, the tool is built on the company’s platform TiBCO Spot fire that measures the performance of social media conversations. From Open Amplify, it incorporates their advanced language processing engine and text analysis capability. It is a web-based service that uses an open API which is used to send the data fed into it by the client to the advanced natural language processing engine built by Open Amplify. The data is forwarded to the engine so as to give it meaning, after which it is then sent to the Social View tool. Though the dashboard, a user can categorize the data for effective viewing and analysis because it is important that the user draws insight from generated from the search results to use them efficiently in their campaigns.
The NLP (Natural Language Processing) technology is used to mimic the human process of language that results in the understanding of the sentiments that are expressed through online text. Once data is sent to Open Amplify API, the engine returns the data in the proper English language, which is in a usable and actionable structure including XML and JSON. Further, the tool is set apart with its filtering capabilities whereby it can associate spelling variations on similar topics. The tool can group different variations of same categories in an aim to increase the accuracy of results. Finally, it used by various companies in gauging different types of social media metrics. The first is the brand metrics that helps in the identification of conversations that surround a particular brand. It goes further in measuring to what degree the comments that surround the product create awareness, preference, and intent. Through the tool, a user can see comments that are associated with the searched topic, its source and have a visual guide of the sentiments. Secondly, is loyalty metrics that helps in identification of a company’s supports, those who advocate for it, and those who detract others from using the product. Lastly, is influencer metrics that identifies those that drive conversations concerning a certain product, which helps in coming up with the persons that create most impact through viral sharing.

**Effectiveness of Analytical Tools through Predictive Models**

The Predictive model is a mathematical algorithm that is used for the prediction of target variables derived from many factor variables. The goal with the model usually measures future values of the predictor variables, where they are inserted into the mathematical algorithm to predict the future values of the target variable. Creating effective analytical models that run predictive analysis is a daunting task that requires necessary technical skills against sets of big data. The primary challenge lies in how much data is supposed to be fed to the predictive models to gain substantive and accurate results. Luckily, in the last few years, there has been an explosion in the availability of big data technologies that aid in data storage, analysis, monitoring, and visualization.
Social media data is full of noise, and thus it is tough to filter out the noise so that substantive data that is actionable can be retrieved. The company’s need to have actionable data so as to increase their chances to improve predictability, as from such data, more accurate results can be obtained. Effectively through the use of some analytical tools like MATLAB, which is used to effectively clean out the noise derived from social media data, predictive analysis is easily carried out.

There is also difficulty in trying to understand the language patterns found in social media data. Many of the people are biased towards the use of slang to deliver their views and opinion, or as they interact. Understanding and interpreting the language is a key drive in developing effective predictive models, and technologies developed in the analysis of language have been developed. Natural Language Processing is very helpful when it comes to an understanding of the language used in social media, and tools such as SocialView as discussed above, have made it easier in interpreting the language use in social media. Predictive models are then based on the interpreted language to understand sentiments passed along by customers majorly.

With the ability to collect information from a myriad of sources, and the promise of being able to analyze that data social media analytical tools are proving effective. In big data environments like social media, predictive modeling is now being effectively carried out through the use of the data sampling techniques that are being developed daily. The data sampling techniques are being achieved through the analytical tools that help in tracking the needs of the target audiences for business. A company needs to understand the attitudes and preferences of its customers. Knowing what the consumer wants then it is easier for the business to provide what the customer wants and how to provide effectively. Using the appropriate tools such as the SAS Social Media Analytics mentioned above, the tool can go through the random chatter
and sieve the appropriate customer responses, opinions, news and trends about the various products that provides valuable data that can be used. The feedback that is then sourced from different social media sites can then be channeled into action-based strategies by finding the competitive edge in a company’s marketing efforts. Prediction of the customer’s patterns of need and behavior serves as a strong gauge of the marketing effectiveness of business.

The analytical tools can also be effectively used in audience segmentation, and one such tool discussed that efficiently helps in doing so is the Google Trends. The customers are divided geographically and demographically and point out to the right social media platforms that are being used by the customers. The tool helps in predicting consumer behavior as well as improving their satisfaction. The results gathered through the tools are a great help when it comes to interacting with the audience and helps a company learn how to become more approachable. The company is further able to predict when there is a crisis in the social media, and thus they are well aware of how to solve such conflicts. When considering predictive models in the interpretation of data in social media, there are uncertainties. The risks are brought about by the availability of vast amounts of data generated from the social media sites.

Summary

As discussed above, easy access to different social media APIs derived from the various sites has led to the explosion of different fields that exploit the data. Evidently, many tools have been developed for sentiment analysis and social media analysis. Some of the most typical of the interpretation tools used in the analysis of the massive data sets in social media have been analyzed. The tools have been divided into different categories and include scientific programming tools, business toolkits, social media monitoring tools, and lastly text analysis tools all used as analytical tools in the interpretation of the vast social media data. The tools have proved to be effective in the design of predictive models
that have helped companies to read and interpret their customer’s behaviors and attitudes as they try to get ahead of their competitors. Notably the social media analytical tools mentioned each have their own unique use in trying to make sense of the big data that is churned out of social media sites. Predicting what customers want is very critical to companies, and the analytical tools have helped them achieve it.