THE IMPLICATIONS OF BIG DATA ANALYTICS ON BUSINESS INTELLIGENCE: A QUALITATIVE STUDY

Sudhir Allam,
Sr. Data Scientist, Department of Information Technology, USA

ABSTRACT

This paper is a qualitative study on how big data analytics has helped shaped business intelligence and drive the success of many companies. The findings reveal that big data analytics has facilitated the extraction of information from the vast amounts of data generated by businesses every second. When combined with the massive amounts of external data accumulated daily – whether it's consumer reviews and experience, competitor knowledge, seasonal purchasing patterns, or something else – companies will amass a massive amount of data [1]. Big data applications collect data from a range of sources in real-time, independent of their formats or structures, while BI systems extract extensive data from pre-defined sources to expand them into insights. Networking sites have ushered in a transition and compelled a fundamental change in business operations around the world. As a consequence, large amounts of data have been collected from many social networking outlets, necessitating the utilization of this data for market intelligence purposes. Despite its relevance, no study has been done on the implications of using Big Data analytics in business intelligence [1]. This research addresses this information gap by exploring the role and implications of Big Data analytics on business intelligence with data obtained from social networking platforms such as Facebook. Since the thesis is qualitative, it uses a qualitative method for data analysis by examining the case of Facebook. The findings would have a huge effect on both theory and practice when it comes to developing plans and methods to maximize the benefits of social networking platforms for market gain.

Keywords: Big data, Business intelligence, Data analytics, Facebook, Social media analytics

INTRODUCTION

Business intelligence refers to the usage of data to facilitate business decision-making, as well as the tools, frameworks, and strategies for gathering, integrating, analyzing, and presenting business data [1]. The main purpose of business intelligence is to help people make smarter business decisions. Big Data analytics, on the other hand, maybe defined in the same way. Business intelligence (BI) is hardly anything new to companies who depend on data collection and interpretation to provide informative, business performance-related analyses [2]. Big data analytics is a method for examining any segment of the market and determining the most effective way to run it. It will aid in the optimization of anything from loss management systems to product development methods. We live in a world where big data is dominant [3]. Big data analytics influence the TV shows we stream, the social sites we follow, the articles we post, the emails we get, and also the customized routes we ride to work. Consumers have become accustomed to personalized communication strategies and continue to see innovative features and offerings that are customized to their individual needs daily [3]. To attract exposure for their advertisement messages and goods, businesses must actively track their consumers' shifting attitudes and tastes.

So, how do the world's most successful businesses predict consumer preferences so precisely? The key is to use a mix of data analysis and market intelligence techniques (BI). Although many people confuse the terms business intelligence and data mining, the two terms have somewhat different meanings. The rise of computational and internet technology has made it easier to gather vast amounts of heterogeneous data from a variety of outlets regularly, creating new needs and challenges for business intelligence. This data includes both organized and unstructured data, as well as data that would be both complex and simple. Wal-Mart, for instance, will process about a million purchases in one hour. Every day, Twitter sends out more than 500 million tweets [4]. In 2014, Weibo was said to have more than 766 million daily active users. The increasing usage of social networking sites like YouTube, Twitter, and Weibo has contributed almost 90% of the overall data currently available [4]. The idea of "Big Data" was born as a result of these unprecedented massive and

dynamic data sets. Big data has gotten a lot of coverage in recent years because of its power for generating market value. According to a 2009 TDWI poll, 38 percent of surveyed companies have used advanced analytics, with 85 percent planning to do so in the next 3 years. Businesses may use advanced analytics to study big data to learn about their actual state of operation as well as rapidly changing systems like customer behavior [4,5,6]. Many of the problems that companies encounter today are supposed to be addressed through big data analytics.

These resources are ideal for businesses that place a premium on the information generated by their activities. BI tools and systems work together to transform data into actionable information that can help businesses make smarter choices and market plans, which, as a result, increase sales. Big data, unlike BI, does not offer answers to important issues that businesses have. Instead, it offers fresh insights that may provoke new questions that businesses haven't considered [5,6]. When businesses have a clear understanding of what they expect to learn, they will use business intelligence (BI) software to provide the information and also make predictions. This paper would conduct a qualitative analysis of the Facebook corporation to further understand the effects of Big Data on market intelligence. This will include investigating how Facebook uses big data to drive its business activities in a competitive market.

RESEARCH PROBLEM

The main problem that this qualitative study aims at solving is to understand how big data can have a significant impact on the current world especially for companies that are facing a lot of competition. Big data analytics has the potential to help almost any industry. This technique is being employed by everyone, from banking, retail, engineering, biological sciences, and education to the public sector [6]. Biological sciences will use big data analytics to simplify their testing processes and support further research programs. Health care not only utilizes large data technology to track aspects like patient history and health care premiums but also to boost diagnosis and treatment alternatives. Big data analytics may be used by the government to enhance productivity and reduce expenditures without sacrificing efficiency [7]. Data mining compiles large amounts of data for data analysts to work with. In an effective enterprise, data management aids in the optimization of certain systems. Machine learning is a subfield of artificial intelligence that enables researchers to analyze larger and more complex data sets.

LITERATURE REVIEW
A. Business Intelligence

The capability of an organization to leverage existing data in a meaningful manner is Business Intelligence (BI). Business intelligence covers a wide range of fields like technological intelligence, consumer intelligence, industry trends, financial asset intelligence, competitive intelligence, technical intelligence, and business counterintelligence. A survey published by Thomson in 2004 suggests that BI generates quicker and more reliable documentation (81%), improved customer experience (56%), better corporate decision-making (78%), and increased company sales (49 percent) [8]. The primary application of market intelligence is to enable business groups, administrators, senior executives, and other managerial personnel to make more educated, data-backed decisions [8]. Ultimately, it would help them find potential growth prospects, reduce prices, or identify obsolete procedures requiring reengineering. BI utilizes tools and algorithms to derive actionable information from corporate data and drive business decisions [8]. BI developers interpret and view details in business intelligence scorecards and analyses, visualizing nuanced knowledge in a simpler, more accessible, and understandable way. BI may also be called "descriptive analytics" when it just reveals past and present state: it doesn't specify what to do, nor when to do or when to do.
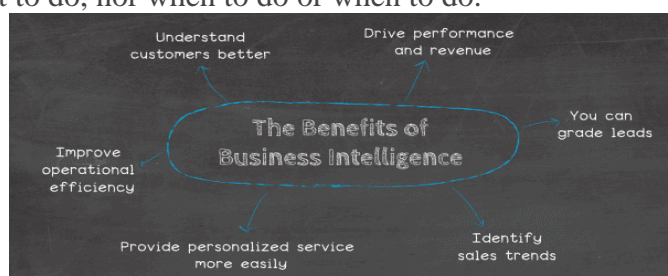

Fig i: Benefits of Business Intelligence

Big data is usually described by three main characteristics: volume, variety, and velocity. The 3 Vs represent a huge amount of data, variety of data sort, and diverse speed of the data production. Concerning the amount of data, Nielsen for instance, with a live view of more than a billion records, every month will produce approximately 300,000 rows of real-time data per second to analyze big data [8,9]. Big data analytics can provide businesses with information from multiple outlets, including customer orders, product trackings, store-based videos, ad and consumer relationships, consumer loyalty, revenue strategy, and financial results, both in terms of data variability and structured and non-structured data analysis. Big data analytics will enhance decision-making in real-time and enable the exchange of knowledge from local and national governments [9].
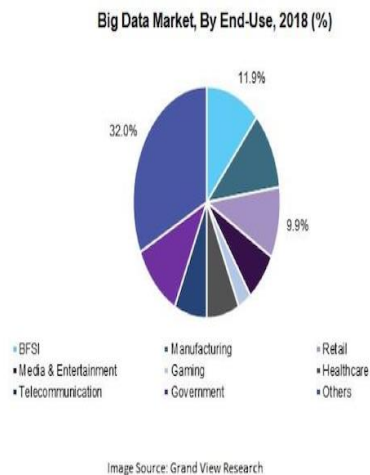

Fig ii: Big data market Across Industries

A. How big data analysis drives the intelligence of business?

Do business people ever feel as if a large portion of operating a company is a guessing game? They draw some conclusions on how much to charge for an object, how to solve an issue effectively, how much of a particular product they need to order, and what creates errors in their business. What if there was a product that could help them choose the right thing for their company every time? Big data analysis is a way of looking at any part of a company and finding the right way for it to function. It will help you to improve anything from loss avoidance to product creativity [10]. Read all about Big Data Analytics and how it will help the company expand. Big data were analyzed on tablets with plums and paper in the past [10]. This method is now completed fully on the server, from data collection to running reports to interpretation. Several IA and machine learning algorithms start to perform some analyses [10].

B. How it Works

Combining data mining and business intelligence

Although data mining and business intelligence concepts vary, the two methods are better used together. It is possible to see data mining as a gateway to business intelligence. Data are also crude and unstructured as collected, which makes it difficult to conclude [11]. These dynamic databases are decoded through data mining, which produces a simpler copy for the business intelligence team to analyze.

Data mining may also be used with smaller databases. This encourages companies to determine the root cause of a certain pattern and to use market intelligence to recommend ways to capitalize on it[12]. Analysts use data mining to collect particular details in the required framework and then follow up on business information resources to identify and explain the importance of information. Companies are using data mining to obtain insight into the "what" and react to the "how" and "what" in market intelligence [12]. Companies that invest in data processing and BI will carry out sophisticated analyzes, monitor, and translate easily. Data mining and market analytics are now increasingly automated procedures and financial returns.

Both BI and data mining companies have a special opportunity to test theories, make quick, data-driven decisions and analyze their results. Talend Data Fabric offers companies to create a trustful end-to-end data-

mining to BI process as a full set of self-service apps which link to over 900 sources prepared for data mining [13]. Talend Data Manufacturing records data lines, documents metadata automatically to maintain the accuracy of market intelligence, enhances teamwork, and enables business customers to make the right decisions based on data. Corporations with a strong data analysis and corporate intelligence process are in their league [14].

C. The Facebook Context

After its conception, the rise of Facebook has largely been attributed to big data. It has evolved into a large data producer, and it will continue to use big data to drive its expansion. Although the goal of Facebook is to link people who may have common interests, the social media platform relies on algorithms, such as the well-known EdgeRank, to determine these links and pick the types of posts that would be more popular in the newsfeed [14]. It essentially utilizes the details on each of its participants to have relations that are of importance for the presentation of information in line with the needs of any person (posts to keep in touch with friends with whom a user most communicates frequently) and generally for advertising [15].
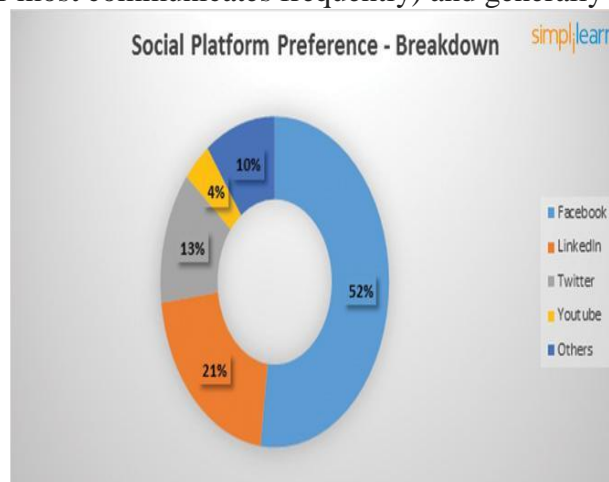
Fig iii: Social platform preference

We produce mounds of details to Facebook's data beast per day. Every 60 seconds, 136,000 new images are submitted, 510,000 new comments are made, and 293,000 new status changes are made [15]. It's a lot of information. At first glance, this data can seem meaningless. However, through this information, Facebook can determine who our friends are, how we appear, what we are doing, where we are, our likes and dislikes, and much more. According to several experts, Facebook has amassed enough data about us to understand us better than our physicians! Besides Google, Facebook is currently the other organization with this high degree of knowledge for its customers [16]. The more Facebook subscribers, the more details they collect. Facebook does not end there by spending heavily on its data collection, storage, and analysis. Facebook offers several methods to determine user activity, apart from monitoring user results.

1. Tracking cookies: Facebook uses tracking cookies to map its users around the internet. Facebook will monitor the pages it visits while a user connects to Facebook and concurrently browses to other sites [16].

2. Facial recognition: Facial recognition and image manipulation skills have been among Facebook's most recent acquisitions. With photo data generated by user sharing, Facebook will follow its users around the internet as well as other Facebook profiles [16].

3. Tag suggestions: Facebook recommends who to tag images using image manipulation and facial recognition.

4. Likes analysis: New research has shown that data can be correctly predicted on a variety of extremely sensitive personal characteristics simply by examining the Facebook likes of an individual. Researchers from the University of Cambridge and Microsoft Study demonstrate how Facebook Likes will reliably predict their sexual identity, lifelong happiness, maturity, mental health, religion, alcohol use and the usage of drugs, the status of social interactions, gender, age, ethnicity, and political views – and many more [17].

FUTURE IN THE U.S

Big data and business analytics are going to continue to be key components for the potential growth of US businesses such as Facebook. While it is currently tight about possible new applications, possible improvements include automatically producing audio presentations of images to assist the visually disabled and predicting where better coverage is needed in its quest to carry out internet service to badly covered areas of the world. In the long-term activities of their well-resourced AI and Deep Learning facilities, several other organizations would probably profit directly from the usage of their resources or indirectly from their promotion of open source concepts[17]. Financial services, banking, engineering, and telecommunications are all among the sectors that will use big data solutions extensively. To enhance processes and track data stream, businesspeople are gradually developing in distributed systems. Retailers are implementing big data techniques to enhance supply chain management[17]. The growing use of data analysis would boost demands for big data over in the future. Additionally, the amount of online companies in the market is increasing as profit margins improve. Other sectors, such as education, transportation, and insurance, can increasingly utilize online resources to deliver better consumer experiences. All the above aspects are aimed at assisting US businesses to expand in the global big data sector.

ECONOMIC BENEFITS TO THE U.S

Implementing Market Intelligence in an enterprise contributes to improved sales efficiency, generating economic gains in terms of both growing or eliminating those expenses and increasing income. IBM projected the data analytics industry to be $187 billion by the end of 2015[18]. With over two billion daily active users globally, Facebook is perhaps the most successful social networking network on the planet. Facebook holds huge volumes of user data, rendering it an extremely large data wonderland. It was projected that the US alone would have more than 183 million active users on Facebook by October 2019[18]. With a market cap of $475 billion, Facebook is also in the largest 100 publicly traded firms in the country. While business analytics offers improved corporate efficiency and effectiveness, improved decision-making processes, improved resource, and strategy coordination, enhanced decision-making rate, improved competitive edge, and reduced risks, it is still a work in progress.

Big data market, 2014-2025 (USD Billion)
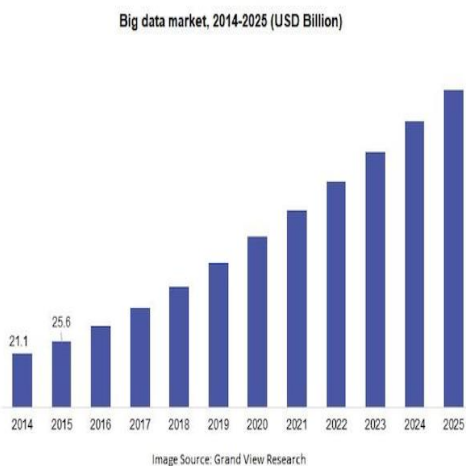

Image Source: Grand View Research

Fig iii: Projections of Big Data market

CONCLUSION

This study helps to explain the importance of Big Data Analytics in BI and has important implications for strategies and tactics to maximize the benefits of market value generation. The findings from this study show that business analytics is considered to be a massive boost for companies as it helps provide accurate insights into the competition, helps simplify business operations, and helps create growth and advancement opportunities. Top management across several sectors are plunging money into big data ventures to help track, quantify and operate their companies efficiently. Such strategic leaders use intelligence to exploit existing markets with subtle developments influencing selling efforts, product selection, and organizational processes.

However, a limited number of companies employ diverse data roles within their technical strategy. These companies understand that knowledge is central to most new progressive developments. Institutions want benefits in the big data and BI realms, and the bottom line is that the above-mentioned concerns can be solved with the right answer. To please everyone, IT must have the necessary data system management and accuracy, and the company must have prompt data access and familiar BI resources to make them competitive.

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