



BIG DATA AND BUSINESS OPPORTUNITIES

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Abstract In this article titled "Big Data and Business Opportunities," an article I was trying to present in two parts. In the first part we made an introduction to everything that means Big Data starting from the basic notion called large volumes of data, then we presented their characteristics followed by data analysis. In the second part we presented Big Data in Business, that is, we presented its use in telecommunication, financial organizations and other.

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1. INTRODUCTION

Big Data means large volumes of data that could not be processed using traditional methods and tools. Big data analysis has been and is at the center of modern and business sciences. This data is in emails, images, online transactions, social networking interactions, etc. These data are stored in databases that have a massive growth and become difficult to manage, analyze and view with the help of typical database software tools. Until 2003, data was 10¹⁸ bytes (ie 1 exabytes) and in 2012 these were 10²¹ bytes (1 zettabytes), and by the end of 2016 it is expected to reach up to 8 zettabytes .

From studies conducted so far, IBM has indicated that around 2.5 exabytes of data are created each day and about 90% of them have been obtained over the past two years. Also from the

studies that have been done so far, I can give as an example the personal computer that has about 500 gigabytes, and in order to be able to store all the data of the world there should be about 20 billion computers.

Big Data can be defined as a large amount of data to store and manage information. If 5 years ago there were only a few dozen storage gigas, today it has reached several hundred terabytes. The term "Big Data" is a term used to identify large-scale datasets that can only be managed using typical Data Mining software tools. The McKinsey Global Institute has produced and published a Big Data report, which describes business opportunities that contain large data.

Gartner Doug Laney had a point of view on the characteristics of the big data and said he had three dimensions: speed, volume and diversity. IDC

(International Data Corporation) has defined large data as a generation of architectures and technologies that allow the extraction of economic data by allowing them to analyze by specifying that besides the three characteristics there are two characteristics, that is, complexity and value¹. High data was an important step in analyzing data characterized by volume, variety and speed.

Data speed is the measure of creation and aggregation of data and is required for all processes, processes that are time-limited, and large data should be used as a data stream to maximize them.

The volume of data is measured by the amount of data available to an organization, data that is larger than terabytes or petabytes.

Diversity of data is a measure for data representation, and from the analytical point of view it is the biggest obstacle to the efficient use of large data volumes. Big Data comes from a variety of sources and is generally three-dimensional: unstructured (difficult to analyze), semi-structured (not compliant with fixed domains and containing separate data elements) and structured (entered into the data warehouse and easy to sort).

The complexity of data evaluates the degree of interdependence and interconnection in large data structures so that a small change can cause very large changes or a small change can affect their behavior. The value of data is the need for data in decision making².

Data that Big Data processes can process can be generated by both man and computer. Man-generated data is generally about the interaction of a user with the system used, and data generated by the computer is a record of the user's activity, for example: the date when he / she was logged in. Human and computer generated data can be in different formats.

The main types of data are:

- Structured data (Structured data is usually stored in the form of tables, they are retained in this form because they contain relationships with other tables and are usually represented in relational databases.)
- Unstructured data (unstructured data is data that does not have a pattern or schema, it can be textual, binary or links to other files.) A text file may contain news or posts, and binary files can include media files such as images, audio, and These unstructured data can not be interrogated using SQL, but if we want to attach an audio file to a relational table, it can be put into the table as BLOB2 or using NoSQL, which is used to store structured data alongside unstructured data.)
- Semi-structured data (This type of data is not relational, but it is usually hierarchically structured and is retained in text files such as JSON or XML. Because they are

¹ Intel IT Center, "Planning Guide: Getting Started with Hadoop", Steps IT Managers Can Take to Move Forward with Big Data Analytics, June 2012

² Stancu Ana-Maria Ramona, "Solutii de extragere a cunostintelor din volume mari de date", ASE Bucuresti 2017

retained as text, they are much processed easier than unstructured data.)

- Metadata (Metadata provides information such as the characteristics and structure of a dataset. These data are generally generated by the computer.) Using them in Big Data solutions is very important during processing because it provides information about the origin of the data.)

By expanding common data sets that now include Big Data, structured and nonstructured data such as social media, navigation logs, sensor data, and application of text analytics and other tools, companies are able to understand customer behavior and preferences .

In the telecommunications field, using Big Data to create predictive models, companies have been able to gain a huge advantage using their data to help them predict and better manage their customers. In this industry, keeping customers was a serious problem because customers like to switch providers looking for the best phones and the best deals and the telecoms companies wanted to understand these customers to identify and stop them . They had data that they were analyzing but never analyzed how customers are calling. For example, customers who generally appeal to customers who generally receive calls, businesses did not know how long they were speaking, and what was the time of their day when they were talking more. This information is very important for businesses, they have managed to identify a model to identify people who are more likely to leave, and

companies are trying to offer these people special offers to prevent them from leaving.

Financial services organizations use Big Data from customer interactions, and they can rank them in multiple segments. After customer categorization, these financial services organizations can create more relevant and sophisticated deals.

Insurance companies also use data analysis to understand the client and provide him with a more tailored insurance solution based on his current behavior instead of placing it in a broader category. By trying to understand the market and people looking for insurance, it has led to the collection of a new database and product innovation. For example, young drivers can opt for low premium insurance by wearing a black box in the car or a mobile app through which they can monitor how they drive their individual capabilities rather than fit them into an age segment . Or insurance companies also use Big Data to know when they issue a home insurance if they need an agent's visit.

Internet-based businesses develop information products that combine customer data to provide more appealing recommendations and discounts. Advertisers are pursuing social media to understand the reaction to some campaigns, promotions, and other forms of advertising.

Even hotels use data analysis to understand customers and improve their offer. For example, a chain of hotels has replaced the traditional method of providing a questionnaire to customers when they released the room, with data

coming from social media where they analyzed people's opinions about their hotel.

In sports, for example in football, clubs such as Chelsea and Manchester United, employ data processing companies and data researchers who record each player's move to look for other ways to win. Players being very expensive, any way to find young talents is very useful to avoid over-wages. With the help of data analysis, in a football match every sliding, every step, every move can be recorded, reaching a number of 2000 events per game. The cameras can record the movements, the distance traveled, the speed and the acceleration of each player, and this data helps big clubs to discover good players in the lower leagues.

Companies can benefit when they use the data correctly and by applying analysis tools to turn the data into critical business information.

And I will continue to have some examples that have happened in the real world.

- A bank has managed to halve staff costs in a certain area. In the past, this bank relied on the fact that the best performances came from individuals graduating from an elite university in the area. The analysis of the data clearly showed that they were wrong. It turned out that candidates from universities that were not prestigious exceeded candidates in that top university, which allowed the company to recruit the most talented individuals for less money.
- A company of goods and services uses social media analysis combined with other analysis tools to find the right candidates

they need. They can analyze the profile of the social media accurately to the level of intelligence and the emotional stability of the potential candidate.

- Another company has used different data analyzes to find the type of individual they want to recruit and the type of individual they want to avoid. This company has discovered that the type of search engine used by potential candidates is very important. Thus, candidates who did not use the pre-installed search engine and used search engines such as Firefox or Chrome would be much more appropriate.
- Another asset company is able to predict how certain key elements of staff involvement influence operating performance, customer satisfaction, and financial performance. In addition, the company can predict the extent to which a certain increase in staff satisfaction leads to revenue growth.
- A call center found that some people in the sales department who had a criminal record had far more satisfactory performances than those who did not have a criminal record. This company also noticed that people with fewer Facebook connections perform better than people with many Facebook connections.
- Another organization has used analytics tools to scan and analyze the content of emails sent by employees, as well as analyze their posts in social media such as

Facebook or Twitter, which allowed the organization to know precisely the level of employee involvement.

- LinkedIn is a business-oriented social networking, founded in 2002, is primarily used to create professional networks. LinkedIn uses Big Data to develop services such as: finds people you might know, jobs you might be interested in, who viewed your profile, and more.
- A UK Formula 1 team, McLaren Racing, uses racing sensors that record real-time data to identify problems using predictive analysis, which leads them to correct some problems before they happen and or too late to solve.
- Verizon is a telecommunications company in the United States of America. It uses Big Data to boost ads on your mobile phone. It uses a unique identifier that when the user logs on to the site, this identifier moves to the action and allows the advertiser to use the information on the computer, so the advertisements will be sent using that information.
- Mint.com is a free website designed for the United States and Canada that offers personal financial management services. This site uses Big Data to give users information on spending by category and provides a perspective on the money spent per week, month or year.
- Tesla is a car manufacturing company. This company implements sensors on cars,

collected data is sent and collected at headquarters. The data collected is used by the R & D department to improve performance, machine maintenance and customer satisfaction. One example is that when the machine does not work properly, the company is notified of this and it will also notify the customer of going to a service

CONCLUSION

In conclusion, Big Data is a very large data analysis solution. A few years ago, we did not have the necessary technology or it was very expensive to keep all the data captured. Even if we were able to keep all the data, the traditional instruments of that time were not able to make an analysis. Big companies like Google that collect a huge amount of daily data have been forced to develop new tools to process Big Data.

Today, Big Data is used in almost all areas. In the field of health, patients can be monitored to prevent various diseases and to be treated in time. In sport, different sensors are used to capture the skills of a sportsman. Other companies use a user's internet history to create the right advertisements. Even the cars use different sensors to prevent different problems and let the owner know when to visit a service. These are just some areas where Big Data solutions are used.

Therefore, using Big Data solutions nowadays is very important for the development of

companies as well as for people who have different daily activities.

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