

Survey on Applications of Big Data

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ABSTRACT

In this paper, we describe about why the Big Data is so important. Big Data has changed how we used to work in past and also many of our old concepts. It is now possible to connect data with almost everything and where it is not possible, there is a scope for it to be connected with data in next decade. While discussing many applications I will also narrate the limitations and word for being cautious.

Keywords: Big Data, Smart cities, Language Translation.

1. INTRODUCTION

As the name suggests Big Data is a method or techniques to extract useful information from massive size data which can be diversified and complex. The main focus of Big Data is to achieve desired business outputs in terms of analysis and values using deployment of analytics. Big Data is widespread in all social media exchange and almost data transmission. It is core of so many cloud related services. It depends on many underlying massive parallel processes. Big Data does not always mean to connect with large data but this also include the technology related to large volume data. For example, 1 PB (petabyte = 1024 TB) or 1 EB (1 Exabyte = 1024 PB). Standard tools and techniques in corporate firms are not capable of extracting data or any type of analysis from these massive data so there comes the need of Big Data techniques.

2. OVERVIEW OF BIG DATA

The need was Big Data was identified since many years. Thanks to the massive turnaround in technology that allowed to store more data than before. It started to act more since 1980. Big Data is an upcoming field, with strong basis of application and necessity in many industry, it is becoming one of the tool for extracting large

volume data. There are main 3 aspects of Big Data: Size, Flow and variations. There are lots of cases where we have to deal with massive size data for instance Google and Facebook. They use tremendous amount of data than what one can imagine. Bases on individual like and existing connections, it suggest you some page history or some new friends or pages. One might get a clear meaning from name Big Data but this is not the end. There are lot more beyond just size of data. It is also identified and characterised by the capacity to play with many dimensions of data that anyone would not have thought or used before. It is called "datafication". For Example, locations, words, friendship likes. The bigger the size, better the usages. All credit goes to latest computer memory, strong processors, softwares and algorithms. Using massive data as tool, the new approach is to give computer enough data so computers can use these data to draw some probabilistic conclusion. So this is quite a different approach than artificial intelligence. The size of data enforces us to change the traditional methodology of how we used to treat data. The collection of data, preferences and establishing co-relations is the new dimension of getting Big Data to work well. Big Data helps in getting reply of famous questions like why, why not, what and is it worth implementing?

3. APPLICATIONS OF BIG DATA

3.1 Health Sector

Many research and health organizations are using Big Data approach. In many developed countries, Big Data approach is used to spot the infections in premature babies before overt symptoms appear. They consider several aspects like heartbeat, respiration, blood pressure many more. Using these Big Data approach they are able to establish a correlation between small amount of changes and big problems. So this techniques helps doctors to predict earlier and save lives. Similar results are found in medical industry. Google in 2009 proved

that it was possible to dictate the effects of flu using Big Data techniques and just google searches. The company took millions of common searched terms during some specific years and compared them with Disease Prevention and Control Center. The simple phenomena was to make connection between most common search terms and then connect the symptoms with geographical area. This way it was possible to connect the symptoms and cure the effect of flu.

3.2 Logistic Sector

Many logistic companies have been using the Big Data analysis to run their operations smoothly and timely. For Example, UPS, the delivery company, places many sensors on different parts of transit vehicles. These sensors will identify specific heat or vibrations patterns which were associated with the failures of vehicles at some point in past. So if they record similarity in these patterns then it gives them signal of alert and they can fix it before it actually takes place. Thus ensuring the delivery of goods in time. Here the theory may not reveal the exact relationship between the heat and failure but the information is enough for the company to be operative in time.

3.3 Language Translatio

One might think that it would be very obvious and easy to translate the language since now we have more capacity of storing the data but it is also important to consider the grammar rules and structure of sentences in both – parent and translated language. But IBM brought major changes into statistical machine translation and then it became a major success to translate the language.

3.4 Back-End Operations

Big Data became widespread since the digital revolution in 1980. Since then it was possible to store and analyze more information. Also it helps in minimizing the cost. It is also possible to relate a person physical posture and weight distribution as quantification. Some researcher measured pressure exerted by different parts of body and then converted that into a digital code. They achieved a great success in identifying an individual. With this coding it was planned to develop antitheft system for car. Using this as a tool, it would be possible to design a car seat so that anyone other than the

authorized driver is not allowed to sit on the car seat and drive the car. This was a great step in technology. No one ever had thought of connecting a body posture with data and that was a great success. The next step would be to send a alarming signal based on driver's fatigue and sleepiness. So this would prevent the future accidents and save lives of many.

Once we could datafy things, it was possible to extend it to any higher level application. For example, IBM was granted patent for "securing premises using surface based computing technology". So this would create a touch based floor. Many alarming things can be set like lights turning on or sounding of alarms etc. But this was again a great step in preventing the great theft.

3.5 Big Data in Big City

Big Data will more application beyond all these sectors. It will help how government work and also predict the economic growth. Also few government has started using Big Data for effective transportation, public services and to lower the cost.

Big Data helps to cope up the needs of staffing problem. If a city has less number of fire service staff to fulfil the needs of its public then Big Data is sure an effective way to fill the gap. The Big Data team created a data base of almost a million building in the city and connected these with the fire that happened in past along with the other data like missed payments, ambulance visits, local crime rates, the building contractor and etc. The conclusion was the correlation of brickwork with fire that reduces the chance of fire. Also this data was able to prioritize the calls.

Table 1. Table captions should be placed above the table

Graphics	Top	In-between	Bottom
Tables	End	Last	First
Figures	Good	Similar	Very well

4. SECURITY AGAINST GIANTS

Since Big Data is a key player in many applications. There are some downside that has to

be considered as well. Everyone loves to be connected with friends and family. In this age of social media, there would be hardly someone who would not have posted any photos or information on this social networking sites. Google, Facebook, eBay and many big giant sites hold many such

private and important data. So this is a challenge against the cybercrime department and the government of a country to protect and secure its country men from any such fraud or misuse of personal data.

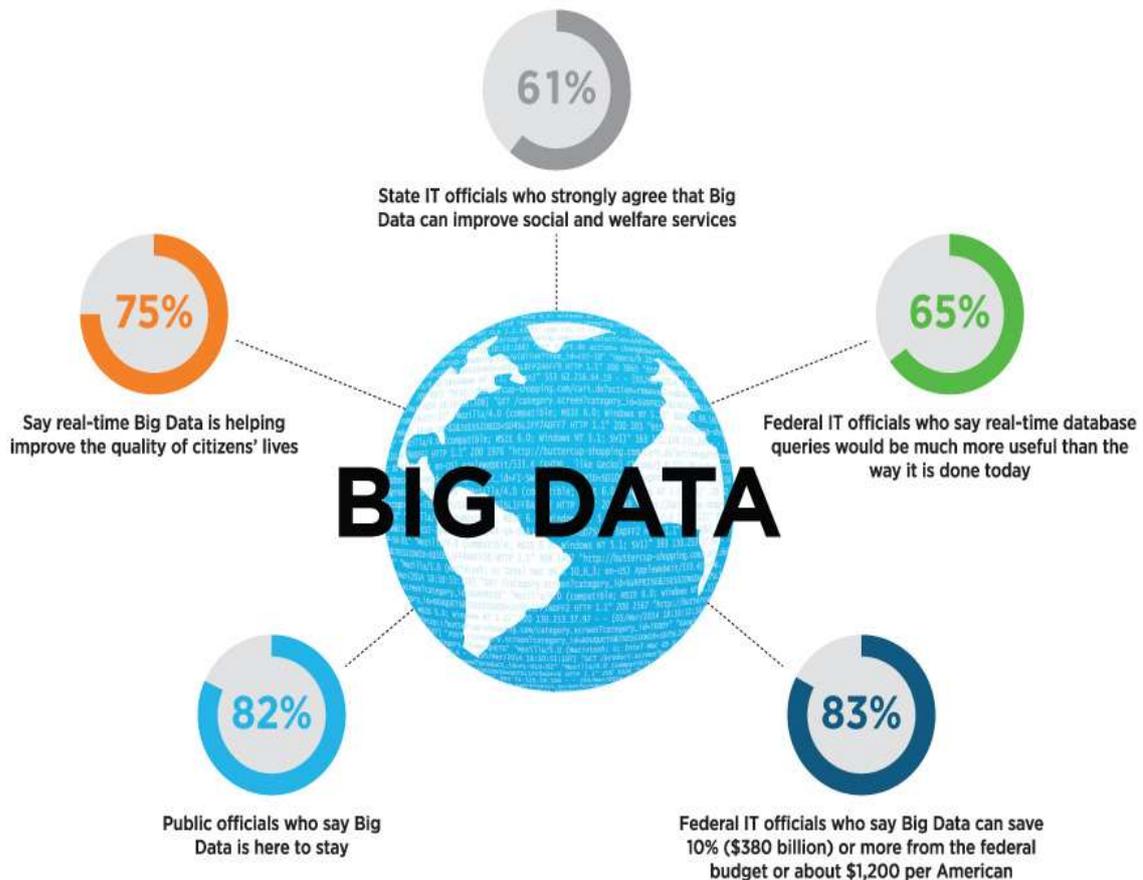


Fig 1: Immediate effects of Big Data on how government operates

5. LIMITATIONS

While considering many applications and positive side of Big Data, it would be handful to consider some limitations of Big Data. Since now we are exposed to enormous amount of data, it is now become difficult to separate the useful data and non-useful data. Also there are lots of information that are misleading. It is important to consider that Big Data is a handful tool but it cannot replace the creativity of human mind. In order to give better information, we have to process all the large size data.

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