



RESEARCH ARTICLE

AN IMPACT OF BIG DATA IN BUSINESS

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ABSTRACT

We find ourselves in the midst of a surge in big data use. The number of businesses, organizations, and institutions now utilizing big data solutions has exploded in recent years, as has the amount of data collected. By analysing big data many organisation are achieving Success. The main issues why these organizations are not begin their planning stage to implement the big data strategy because they don't know enough about the big data and they don't understand the benefits of big data. In this study, an attempt is made to review the role of big data in the business.

INTRODUCTION

The aim of big data is to provide better usage of resources and storage, reduce the time of computation and good business decision making. The term "Big data" indicates data, but in huge or enormous form, which cannot be processed by the conventional database systems. The term has been in use since the 1990s, with some giving credit to John Mashey for coining or at least making it popular. Big data usually includes data sets with sizes beyond the ability of commonly used software tools to capture, curate, manage, and process data within a tolerable elapsed time. Big data "size" is a constantly moving target, as of 2012 ranging from a few dozen terabytes to manypetabytes of data. Big data requires a set of techniques and technologies with new forms of integration to reveal insights from datasets that are diverse, complex, and of a massive scale. In a 2001 research report and related lectures, META Group (now Gartner) analyst Doug Laney defined data growth challenges and opportunities as being three-dimensional, i.e. increasing volume (amount of data), velocity (speed of data in and out), and variety (range of data types and sources). Gartner, and now much of the industry, continue to use this "3Vs" model for describing big data. In 2012 Gartner updated its definition as follows:

"Big data is high volume, high velocity, and/or high variety information assets that require new forms of processing to enable enhanced decision making, insight discovery and process optimization." Gartner's definition of the 3Vs is still widely used, and in agreement with a consensual definition that states that "Big Data represents the Information assets characterized by such a High Volume, Velocity and Variety to require specific Technology and Analytical Methods for its transformation into Value". Additionally, a new V "Veracity" is added by some organizations to describe it, revisionism challenged by some industry authorities. The 3Vs have been expanded to other complementary characteristics of big data:

- Volume: big data doesn't sample; it just observes and tracks what happens
- Velocity: big data is often available in real-time
- Variety: big data draws from text, images, audio, video; plus it completes missing pieces through data fusion
- Machine Learning: big data often doesn't ask why and simply detects
- Digital footprint: big data is often a cost-free byproduct of digital interaction

The growing maturity of the concept more starkly delineates the difference between big data and Business Intelligence:

- Business Intelligence uses descriptive statistics with data with high information density to measure things, detect trends, etc.

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- Big data uses inductive statistics and concepts from nonlinear system identification to infer laws (regressions, nonlinear relationships, and causal effects) from large sets of data with low information density to reveal relationships and dependencies, or to perform predictions of outcomes and behaviors.

MATERIALS AND METHODS

This paper is based on the randomly selected articles in the field of big data. Five articles were positively identified for the study and read completely for the review. Calculations included in these articles were carefully rerun to guarantee information accuracy. In this review a question is posed

Question: What is the impact of big data in business?

The required data is extracted from the papers to answer the question posed above.

BIG DATA FOR BUSINESS

Organizations are grappling with what big data is and how it affects their organizations and how it makes benefits to their organizations. A survey is conducted in which found that the only 12 percent organizations are implementing or executing the big data strategy and 71 percent organizations are going to begin the planning stage. It is clear that organizations need good knowledge of customers, goods and rules, with the help of big data organizations can find new ways to compete with other organizations. The organizations of the world are using the big data for their future decisions. Types of decisions that organizations can make from big data are smarter decisions, future decisions and decisions that make the difference. Organizations are making business decisions on the basis of the transactional data in past and in present but there is another kind of data which are nontraditional, less structured data for example weblogs, social media, Email and photographs that can be used for effective business decisions making. Oracle offers the products to acquire and organize these data types and analyze them to find new insights. Oracle's big data solution have 4 steps which are acquire big data, organize big data, analyze big data and decide on the basis of these analyses. Organizations which built around big data from start are Google, eBay, LinkedIn, and Facebook. These organizations did not need to integrate big data with their existing sources of data (Davenport and Dyché, 2013). A process has been described (Figure 1) for the organizations that are interested in adopting Big Data (Weng and Lin, 2013).

Steps of this process are following

- Social factors, technological factors and economical factors forms the factors affecting Decision criteria.
- User Scenarios, There are different scenarios which organizations can select for big data e.g. big demand and cautiously optimistic.
- data warehouse, cloud analytics, embedded analytics and big data visualization are Candidate Technologies.
- Technology Assessment Indicators are global market size, enterprise adoption ratio, entrance barrier and strength of industry.
- Technology Planning Implications, two types of implications are here which is technology planning implications for scenario big demand and technology planning implications for scenario cautiously optimistic.

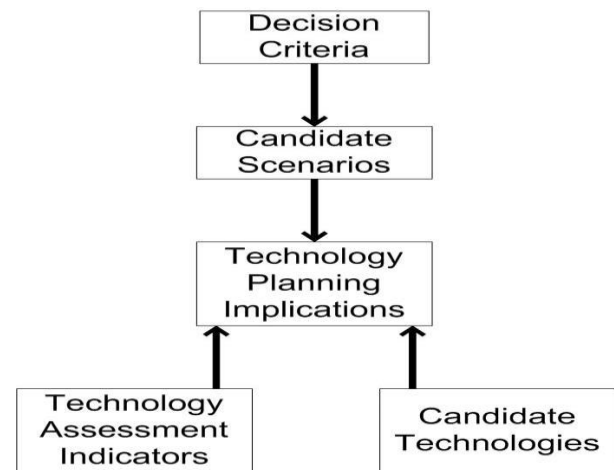


Figure 1: Research Framework of Technology Strategy Planning (Weng and Lin, 2013)

By adopting this strategy organizations can get the fruits of big data.

BIG DATA GOALS

Big data helps to achieve various goals (Davenport and Dyché, 2013), which are following.

Cost Reduction

Big data and analytics can productively be used as automated decision systems that send alerts to managers about cost-cutting opportunities, without requiring the managers to perform extensive research

Time Reduction

merchandise pricing optimization application calculates data sets in seconds or in minutes which actually can take hours for calculation.

Support in Internal Business Decisions

The main idea of big data is to assist in the interior company decisions like, what kind of new products should be offered to people? , How much stock should be detained? And what must be the cost of our item?

Developing New Big Data-Based Offerings

Big data must be used to create new products and offerings. LinkedIn is the top example, which has used big data to develop products and offerings, including jobs you may be interested in, who have viewed my profile, people you may know, and numerous others. These ideas have pulled people to LinkedIn.

Data Mining with Big data

In production environment big data mining process does not end. A good big data analytics platform has factors like speed of development, robustness, easily analyze huge amount of data. Growth of data in terms of size and number of users has increased in past few years. In 2010 there were only 4 data analysts working at twitter but now there are thousands of

employees working at hadoop cluster node data centers of twitter. Twitter increased the analytics power before the exact time and if an organization does not do this before it needed then these issues will become nightmares. Extracting information from the stream data at real time is the good way to come to know what is happening at the spot. Stream data arrive at very high speed and it is very difficult to analyze stream data at real time, stream data requires very efficient algorithms for mining, that algorithm should be accurate. Online news, social media and micro blogs are the examples of streams created by the users. Solutions to deal with these streams were not designed. Samoa was a platform for mining these streams. This is a tool for online mining in the cloud environment. Samoa can be run on different distributed stream processing engines like storm. In future Samoa will be open source and that will be evolution in the research area of the big data stream mining. Samoa also provides API for algorithm developers. A data driven model named Hace is also proposed which aggregate the multiple sources of information; analyze data from the data mining perspective. Big data helping Intel for improving their business intelligence; large portion of their data was unstructured which was 90 percent of their enterprise data. Aims of the Intel were make better decisions, increase business velocity, discover and tap new markets. Intel wants to increase their Business intelligence strength from the descriptive analytics to predictive analytics by using data mining from big data.

Big data facts and Figures

In an organization everything is dependent on the decisions of the policymakers and their decisions are dependent on the data mining techniques, data mining algorithms and frameworks of big data. By integrating data mining with big data frameworks we can get more accurate business decision making. To find true business worth from big data, organizations require the tools to analyze and arrange different data types from different sources. If, organizations have power to analyze data of any size, any type and from many sources then outcome is in form of deeper and reliable information about business trends, values and patterns. Data types which are used for business decisions (2) are shown in Figure 2.

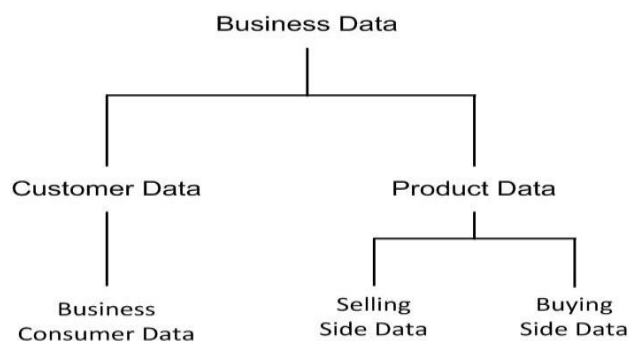


Figure 2. Business Data Types for Decision support

Figure 3 indicates fraction of business data which is used for business decisions. An organization's, 76 percent of customer data and 70 percent of product data are required for decision support. In the customer data 66 percent of business consumer data are used to make decisions and from the product data 62 percent of selling side and 61 percent of buying side data are used to make decisions (2).

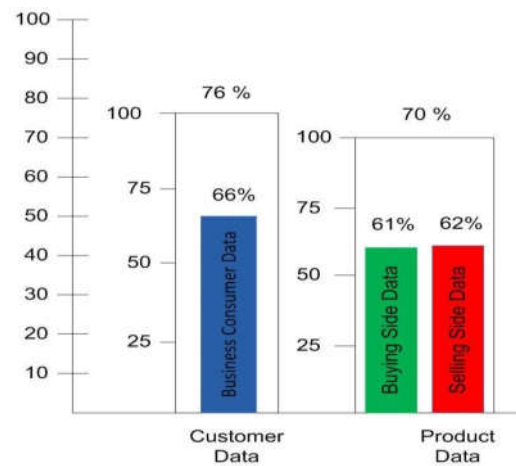


Figure 3. Percentage of Business Decision Support Data

The 63 percent organization reports that the use of big data is beneficial for their companies and organizations (Schroeck *et al.*, 2012). Analytic techniques go further than data mining to determine not only what has happened, but to predict what is going to happen based on all data.

Conclusion

Big data must be integrated in the organization's architecture, even the organization have their well established and large businesses. Countries in the world, IT companies and the relevant departments have started working on big data. Organizations which built around big data are Google, eBay, LinkedIn, and Facebook. Large organizations are joining the data economy and combining the big data analytics with traditional analytics. This will effect on the organization's skills, leadership, structures and technologies. The 63 percent organization reports that the use of big data is beneficial for their companies and organizations. Organization's more than 70 percent of customer and product data are used for the business decisions making. Key challenges which appear are designing big data sampling and building prediction models from the big data streams. Challenges including potential misuse of big data are also here, because information is power. Types of the data which people will produce in the future are unknown.

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