International Journal of Advance Research in Science and Engineering
Volume No.07, Issue No.02, February 2018
www.ijarse.com
IJARSE
ISSN: 2319-8354

DATA ANALYTICS IN BUSINESS ORGANIZATIONS

Soumya Padam[1],Saileja sevella[2], Purnachary.M[3]

[1]*Asst. Professor,*

Department of Computer Science, UCW, Hyderabad, (India)

[2]*Asst. Professor,*

Department of Business Management, UCW, Hyderabad,(India)

[3]*Asst. Professor,*

Department of Computer Science, Nizam College, Hyderabad,(India)

ABSTRACT

Data analytics technologies and techniques are used in varied industries to enable organizations to make more-systemized business decisions, scientific models, theories and hypotheses. This paper talks about how data analytics is useful in business organization.How the decision making has changed drastically from traditional mode to most dynamic and objective oriented with the analysis of data from various sources. Why any organization needs it, also explains different areas where it can be used. The various types of tools and techniques used and benefits an organization can get out of it. Apart from that it also talks about the challenges faced by the organizations while implementing such system in place.Various references from where we got inspiration to build thearticles.

Keywords: Data Analytics, Big data, Data Analysis,Regression,Classification,Clustering.

I. INTRODUCTION

Any organization which plans for an unforeseeable future has to depend on some data which comprises of internal as well as external sources. Many organizations think that they have sufficient information for decision making, but how relevant that is and how they are able to correlate or say modulate it to fit in the current scenario. Due to technological boom, the environment has been changing more dynamically and it's not the same what we had yesterday, so in such situation it's not convincing to say what trends were observed will continue to be the same in future.

Data Analytics is the solution to bring the data to relevant and reliable content. This paper gives why it's important to capture data, the challenges faced, tools used by the organisation and how to overcome such hurdles along with experts sayings on capacity to analyse and act on data is critically important to Business. With the frequent changes in the demand from consumers and environmental conditions the organization has to be proactive enough to cater such needs. This is possible only when they can react quickly by analysing the data properly.

II. LITERATURE REVIEW

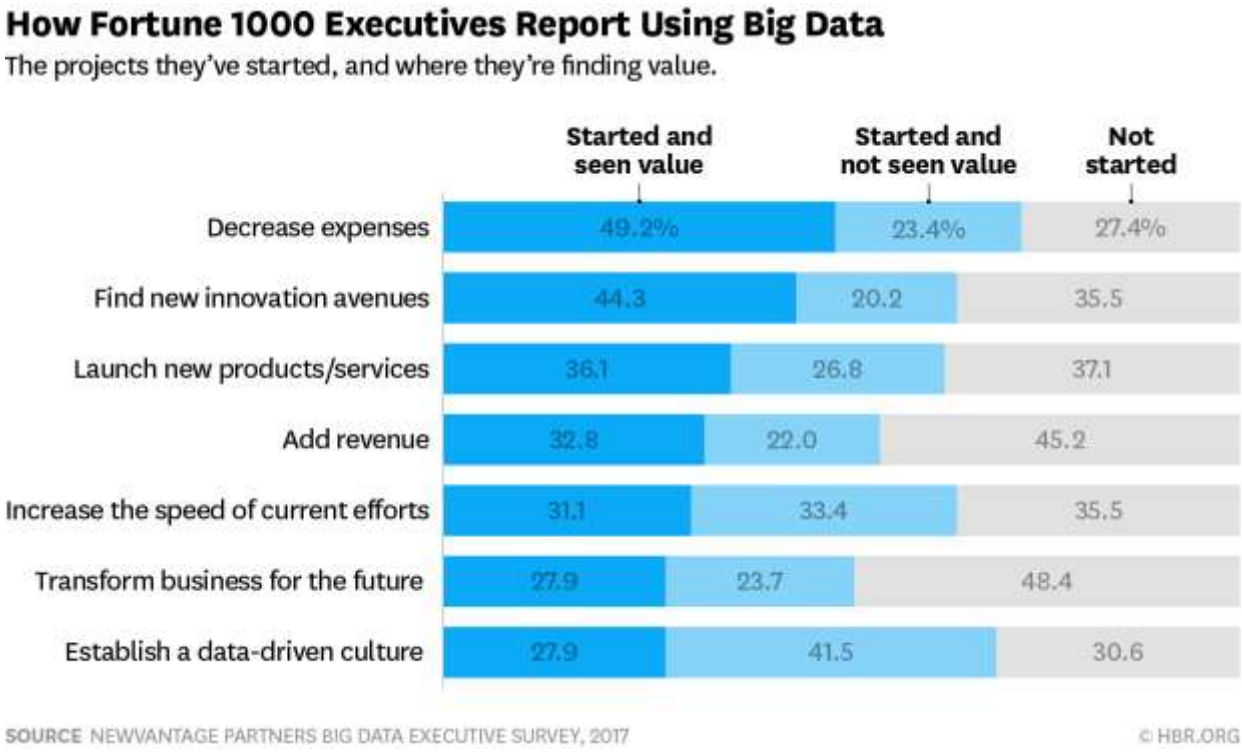
According to Mr.MurliBuluswar, chief science officer, AIG: The challenges faced by them is the transformation from the traditional decision making to more dynamic, objective and data driven which embraces the power of technology and data.

The Learning's from his past few years is that the power of fear is quite tremendous and makes oneself to think and to act differentlytoday, and the questions asked today were not asked before about their roles. It's the mindset change from expert oriented to more dynamic and learning oriented, as opposed to fixed mindset that he thought was basics to sustain the health of any organization, whether a small, medium or large.

According to Ruben Sigala, chief analytics officer, Caesars Entertainment: The most challenging part is to find the set of tools that help entities to effectively generate value through such process.Also as per him the technology is still changing and sources are evolving.

According ZoherKaru, vice president, global customer optimization and data, eBay: The biggest challenge is data privacy and data shared versus what is not shared. And as per his perspective the consumers are willing to share if there's value is returned. One-way sharing is not going to help anymore.

The belowgiven chart illustrates the range of big data initiatives that are underway at leading organizations, with expense reduction being the most mature, as measured by the number of initiatives that are underway, with nearly one-half of all executives indicating that they have reduced expenses as a direct result of their investments in big data.



The survey strongly indicates that firms are also undertaking "offensive" efforts that are explicitly intended to change how they do business. After the initial "quick wins" are **wrung** from cost-reductions, executives are **turning** their attention to new ways to innovate using data.

III. AREAS WHERE ANALYTICS WORK AND ITS SIGNIFICANCE

Data is the epicenter of any business irrespective of its volume or size. It has the potential to unlock new opportunities, scalability, and uncover hidden challenges. Most organizations understand the significance of data collection and are recording it.

Big Data Analytics is the process of collecting large chunks of structured/ unstructured data, segregating and analyzing it and discovering the patterns and other useful business insights from it. It helps in determining which data is relevant and can be analyzed to drive better business decisions in the future. Many commercial as well as open source tools are available for big data analytics in organizations.

Big Data has become a key differentiator to help organizations forecast and make strategic decisions which help them remain competitive and increase revenue, reduce risk and attain rapid growth. Below are the areas where Big Data & Analytics helps in improving the efficiency.

Travel

The Travel industry generates a large amount of data during reservations, inquiries, itineraries, car rentals, hotels, trains booking, airlines, fare charts, customer feedbacks etc., thus have long trails of data. In Travel industry predictive analytics is used, it has many uses, so in this there will be vast data which is combined with predictive modeling. With the help of Big Data analytics the travel industry units can deliver a much improved consumer experience and increase the business efficiency.

Healthcare

Big data covers every industry and Medicine and Health care sector are not different. As healthcare industry generates large amounts of information continuously big data analytics plays an important role in improving services and tackling some of the major challenges in this healthcare sector, especially in terms of patient profile history analysis, genomic analysis, public health monitoring, fraud analysis, diagnosis and consulting etc. Cloud- based Big Data Analytics Patient Experience Management platform help Providers better understand the actual patient experience, the main driving factors for enriching the same and also enable custom offerings and campaigns to the target a particular patient groups for optimal reach and response with the aim to enhance the patient's experience and satisfaction, at a fraction of the cost of in- house development.

Ecommerce & Retail

E-commerce and retailers are implementing analytics to collect relevant business information which will not only help them target the customers but also reach more customers and boost sales. Big Data Analytics play a key role in all stages of the ecommerce and retail selling and buying process. This will help in predicting the trends, identifying the potential customers, optimization of the pricing models, buying behavior based customer

segmentation and present personalized, real time offers based on their preferences. Overall, Big Data Analytics provides ecommerce and retail players a smart shopping experience.

Manufacturing

Manufacturing industry deals with large amounts of data from a network of thousands of motors, heavy mechanical equipment, electronic relays and sensors synchronized & which are controlled by complex systems. In a manufacturing industry with Big Data analysis we can improve the production quality and we can reduce processing flaws, we can increase efficiency and save money & time. The industry requires monitoring of thousands of parameters & signals in every moment. With the big data analytical solutions, manufacturing industry people can shift their focus from traditional monitoring to a more agile & real time process. Using Big Data a manufacturer can analyze the risk in delivery of raw material. They can also use analytics findings to identify alternate suppliers and develop contingency plants to make continuous production irrespective of natural disasters. This enables them to generate information for substantially improving the business activities. It also address many challenges at the same time.

IV. CHALLENGES

Storage:

Most organizations' data is increasing at a rate of 50 to 60 percent per year. Merely storing the data is becoming a real challenge. Organisations are looking at options like data lakes, which will allow them to collect and store large quantities of unstructured data in its native format. The problem is, we have to construct data lakes where the data is stored and on that data we have to apply the data mining tools on data in such a way that it is useful and does not becomes a wasteland where data goes without being retrieved again.

Security

Security is part and parcel of data stored. Unless there is security mechanism, the data is not reliable. The reality is that if we intend to collect, store, and use big data, we also have to invest in adequate security system. Adequacy is a relative term and depends on the cost of data, reliability, criticality and time and money to regenerate it.

Management

Managing enormous streams and volume of data from the various disparate sources, both inside and outside of the organizations, is another challenging matter entirely. When the organizations own data sources (like finance, marketing, operational, and other data) are combined with external sources (such as social media and industry trends and data), it becomes very diverse as well as exceptionally massive. It’s very challenging to build algorithms to successfully query these highly varied data sets and provide useful information out of it. Also it’s not possible by everyone dealing with such data

Data Access

To make accurate decisions, information systems are used in the companies. Data should be available in complete, accurate and timely manner. Cause of this it might be complex for data management and for processing. To improve productivity, business intelligence and for better decision making, some standardised API's and formats should be used.

Cost

Managing the data, its security and retrieval system everything can me denominated in terms of money when it comes to assessing cost. As the volume increases the cost related to it also increases. Though with the changing technology there is drastic reduction in cost but then it's always relative to the volume of data. In some countries government provides incentives for data integration problems.

V. TOOLS AND TECHNIQUES

Business Intelligence tools provide decision-makers the information that they require to make insightful decisions. These tools gather and process data from different locations quickly so that proper presentable report is provided to decision maker and increases their knowledge base. It's user-friendly such as scorecards and dashboards that any novice to the system can understand things easily.

However, with increasing quantity, speed, variety and accuracy of the data, it is a huge challenge to accomplish the data and get the applicable business perceptions and intelligence from it. In every organization, data become Big Data and it is becoming a challenge for the organization's existing IT systems. Big data is a challenge for the IT organization to store, process and analyzing the data. Here comes the significance of Big Data Analytics solutions which exploits dedicated software tools and applications for optimization, forecasting, data mining, and predictive analytics.

Ideally tools should meet the following criteria's:

- It should provide the users with analytics algorithms and models.
- It should be engineered to run on big data platforms.
- Should be adaptable to structured and unstructured data from different sources.
- It should be scalable to adopt to wide range of data bases.
- It should be able to integrate with data visualization and presentation tools.
- Should be adaptable with other technologies as well.

It should also have essential characteristics such as:

- ✓ **Clustering and Segmentation:** Dividing large collection of data into small cluster or group which has some similarities.
- ✓ **Classification:** Organizing data into predefined set based on the attributes that are predefined by the user or based on clustering model.

- ✓ **Regression:** It gives the relation between dependent and other independent variables and provides set of values of dependent variable in relation to changes independent variables.
- ✓ **Association and item set mining:** It looks for statistical relevant relationships between variables in a voluminous data set.
- ✓ **Similarity and correlation:**There are infinitely many ways to define and is used to inform undirected clustering algorithms.Correlation is study of relationships between categorical and quantitative variables.
- ✓ **Neural Networks:**used for machine learning based algorithms.

VI. DATA ANALYTICS WITH MANAGEMENT

Big data analysis is helping organizations to analyse their customers, predict the competitive landscape and suss out emerging trends before they go mainstream – All these helps companies maintain a competitive edge. But turn the lens inward, and big data can also be a competitive advantage by helping managers sharpen focus on hiring, retention, compensation and developing top talent. Big data and analytics also help organizations make sound decisions around succession planning, career progression and leadership development by tracking performance.

Data analytics have been touted as the most important technology which will bring organizations move to their next frontier. Data analytics helps in understanding their customers better, predicting outcomes, understanding public sentiments on the social media, and optimizing resources to achieve the best results. Managers who are leading their organizations have to play the lead role in shaping the direction and planning the strategies on who, what, when, where and how should data analytics be applied in the different parts of the organization. The proposed training is designed for managers covering several topics in the Data Analytics area. The training will be conducted by the senior faculty members from the School of Information Systems, who are experts in their respective areas.

Organizations use Big Data Analytics to:

- Improve internal processes, such as risk management, Customer Relationship Management, supply chain logistics or Web content optimization
- Improve existing products and services
- Develop new product and service offerings
- Better target their offerings to their customers
- Transform the overall business model to capitalize on real-time information and feedback.

VII. BENEFITS OF DATA ANALYTICS

Big data analytics helps organizations harness their data and use it to identify new opportunities. That, in turn, leads to smarter business moves, more efficient operations, higher profits and happier customers. In his

report *Big Data in Big Companies*, IIA Director of Research Tom Davenport interviewed more than 50 businesses to understand how they used big data. He found they got value in the following ways:

- ✓ **Cost reduction.** Big data technologies such as Hadoop and cloud-based analytics bring significant cost advantages when it comes to storing large amounts of data – plus they can identify more efficient ways of doing business.
- ✓ **Faster, better decision making.** With the speed of Hadoop and in-memory analytics, combined with the ability to analyze new sources of data, businesses are able to analyze information immediately – and make decisions based on what they've learned.
- ✓ **New products and services.** With the ability to gauge customer needs and satisfaction through analytics comes the power to give customers what they want. Davenport points out that with big data analytics, more companies are creating new products to meet customers' needs.

Business Benefits of Big Data Analytics

• Faster and better business decisions
• Improved business performance with real time monitoring of events
• Increased product and service development
• Competitive advantage in the industry
• Better identification of risks and effective mitigation
• Improved customer engagement

VIII. CONCLUSION

In the midst of ever changing technology, data analytics is still finding its way in the decision making process. There are many challenges with the implementation but then it has to be leveraged between the cost and benefits derived. Those who lag in technology adoption are left behind. In a way to better compete on analytics, market leaders are finding analytical solutions and platforms to deliver that extra edge over others. In the end it all depends on those who can connect analytics to the business, also who has skills and know-how to take advantage of analytics.

References

[1.] https://www.informationweek.com/big-data/big-data-analytics/12-ways-to-connect-data-analytics-to-business-outcomes/d/d-id/1324113?
[2.] 2)https://bi-survey.com/challenges-big-data-analytics
[3.] https://www.mckinsey.com/business-functions/mckinsey-analytics/our-insights/how-companies-are-using-big-data-and-analytics
[4.] 4)https://search.proquest.com/openview/863e390a27e9a69d59ee5ffe2204f293/1?pq-origsite=gscholar&cbl=26142
[5.] 5) https://www.sciencedirect.com/science/article/pii/S0040162516000500

[6.] 6) http://aisel.aisnet.org/cgi/viewcontent.cgi?article=3785&context=cais

[7.] 7) https://hbr.org/2017/06/how-to-integrate-data-and-analytics-into-every-part-of-your-organization

[8.] 8) http://www.digitalvidya.com/blog/data-analytics-tools/

[9.] 9)https://books.google.co.in/books?hl=en&lr=&id=09JagAXxSYgC&oi=fnd&pg=PP10&dq=data+analytics+in+organizations&ots=JpjSpOazac&sig=DgtlVlpVMbp8KH46T29tvBrzl9k#v=onepage&q=data%20analytics%20in%20organizations&f=false

[10.] 10)https://www.smu.edu.sg/programmes/professional/data-analytics-for-managers

[11.] 11)https://www.cio.com/article/2978815/staff-management-be-more-effective.html