

The Significant Role of Big Data Analytics in Business: A Review Case Study

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Abstract

It is noted that many organizations attempt to access getting access to records and available information via social media to heighten their performance overall performance and boom their returns. It is likewise noted that processing heterogeneous kinds of facts to retrieve poses a challenge to most companies which the leaders are striving to resolve them. As the Big Data trend has the competence to guide a radical transformation era in research, invention, and business marketing for Storing, Processing, and reading facts, corporations, appear to be the crucial trend. Organizations are managing data to use it at new ranges and direct decision-makers to make supple decisions in real time. This study spotlights a few components of Big Data, its significant roles in businesses` overall performance, and how corporations can use well-known organizations' business performance. In addition, the study also explains the ways organizations can benefit from the well-known established open-source platform Hadoop to method information to benefit the advanced competitive arena.

Keywords: Big Data, business advancement, Hadoop, Data-Driven Organizations, Big Data Analytics

1. Introduction

Big data is the trend for many organizations to use to analyze their company progress and revenue. Established organizations like Google, Yahoo, eBay, Facebook, and Twitter are concerned about big data in their business scene (Coursera, 2022; Sun, & Huo, 2021). Big data is sophisticated and richer data that illustrates more facts about behaviors, activities, and events that happened all around. Analytics of these big statistics give access to various and different types of data from massive alternatives in a shorter period (http://www.sas.com/en_us/whitepapers/ia-prescriptive-analytics-107405.html).

The data collected by organizations might be used to generate new income streams. Accenture (n.d.) explained that first, the organization needs to start with a professional reason for analytics. Then, it must identify which form of analytics they want to regulate on how data will be gathered, sorted, and processed for the previously designated analytics form. The organizations didn't face any challenges in integrating the old technology with big data analytics since they didn't have the traditional forms or sources of infrastructure. Analytics big data get along with data analytics in different types. For instance, Hadoop is software that sorts massive types of data, and it works beside the mainframes of IBM. upGrad (2019) opines the rapid flow of data means that it should be arranged, sorted and managed rapidly. Organizations that are concerned about telecommunications have shrewdness into the volume and high road traffic benefited from the information gathered from the power of big data. For example, Disney land. Barnaghi, Amit, and Cory (2013) said that Disney land benefits from big data analytics by introducing "magic wristbands" in their parks which assists in improving the attention of visitors around the park. Amazon can envisage their customers' preference to purchase and introduce the products to them accordingly.

In many organizations, the opportunities that are associated with data analysis have generated significant interest in business intelligence. According to Shabbir and Gardezi (2020) at times point to techniques and technologies that give a better understanding of the market other than making decisions in an accurate time. Organizations accomplish the biggest value from big data when workers are free to explore their analyses. Popovic et al. (2018) argued that establishing this type of environment leads the IT work team to change from serving to enabling models.

Surprisingly, Big Data is ubiquitous; everyone attempts to gather and analyze as well as collect money by using its power. Big data is like analyzing billions of search engine inquiries and billions of Smartphone records to regulate signals of terrorist attacks and activities, or billions of airline situations to select the suitable time for buying tickets. By merging the power of new computing trends with the numerous digital data, big data assumes to resolve almost any glitches like crimes, health care, and other difficulties by processing huge information or performing complex operations via computer.

1.1 Research Questions

1. What is the advantage of massive records analytics?

2. How can corporations acquire huge quantities of records?

3. How corporations can appoint massive records analytics to beautify their commercial enterprise and benefit from an aggressive advantage?

1.2 Research Significance

Big statistics analytics resource businesses to make use of their statistics and use it to discover new opportunities. Additionally, it ends in sensible enterprise transferring ahead, greater powerful operations, excessive earnings, and happy customers. So, businesses need to cope with huge statistics analytics severely and well to decorate and enhance their improvement issues.

2. Background

Big data is an expression where the software tools hold, manage, and process them during an acceptable time in a cost-effective manner (Coursera, 2022; Jiang & Chai, 2016). Big data started its growth in early 2011. It experienced a teething effect, but it has proven its competencies when the organizations capitalize on its competencies and gives full business services. upGrade (2019) and Sun and Huo, (2021) claimed that the implementation of big data led to great achievement to improve their business. This has popularised big data and has extensive acceptance among many industries and companies. Undoubtedly, big data has opened a great platform to the wider market where every part of the industry is attempting to assess the higher possibilities to gain and investigate facts and information to have beneficial outcomes and more users which bring about more illustration of business assessment. This eventually facilitates the best option and decision-making platform. Shabbir and Gardezi (2020) advocate that when business leaders replace their traditional approach by adopting new and helpful ways, their business will flourish, and eventually, they will enjoy a bigger revenue and profit.

3. Big Data Analytics Benefits toward Business

In this era of technology, generally, there is similar technology for holding and analyzing data at cheaper cost points in the market. However, companies aim to use data to the next level by using information technology to show accurate and steady business experimentation to guide decision-makers. Often the new approach and trends guide organizations in making the right decisions by facilitating them to investigate the outputs, business models, and renewal in customer experience which brings about a possible radical revolution in research, invention, and business marketing. Some early commandants like Amazon, eBay, and Google, scrutinized aspects that regulate performance to outline the best features that promote their sales income and user interactivity. Finance establishments and principals are strong experimenters who keep amending their methods for segmenting credit card customers. Established companies strive how to accomplish the most effective promotions for specific customer parts and to discern decisions on fixing the price, and development of companies by using data mining to gather facts and information from social media. The data group usually analyzes and examines consumer posts about their products on social media. This result influenced the companies' campaign to meet the desire of their consumers. Shabbir and Gardezi (2020) strongly opine that using big data as the fundamental factor in making decisions that need new capabilities, most firms are far away from accessing all data resources.

Various companies from different backgrounds have gained significant insight from the designed data gathered from different enterprise systems and anatomize by commercial database management systems. Organizations should not allow the previous data warehouse and current business intelligence processes to bridge the organization back. To employ the fortes of big data and enjoy the benefits, many organizations use reengineering processes to amalgamate big data analytics.

The infrastructure of the organization illustrates the business activities and the processes to amend and flake with big data analytics. Popovic et al. (2018) recommend companies distillate on data analytics as it influences infrastructure components to achieve a competitive advantage.

3.1 Utilizing Hadoop in Big Data Analytics

Banica and Hagi (2015) define Hadoop as "an open-source software platform that enables processing of large data sets in a distributed computing environment". Based on big data, the researchers also explained some concepts like rules for building, organizing, and analyzing massive data sets in the business setting. As a result, they came up with three construction coatings as well as some graphical gears to discover and signify unstructured data. They further explained how some established organization like Google, Twitter, and Facebook could improve their business when they focus their attention on processing big data within a cloud environment. Undoubtedly, one significant way to benefit is by collecting and analyzing data from comments on social media. Caesars Corporation studied health insurance data for 65,000 workers and their families about how they used medical- services. The corporation used the data to deal with specific drug companies. Zynga is another example, a game maker collected data from customer service. He used these collected data to design a new version of his game. Banica and Hagi, (2015) came up with a big-data infrastructure for their project and presented a new database called "NoSQL" for storing big data. They executed it on Hadoop for collecting structured and unstructured data. The primary construction layer is intended to gather any sort of data whether it is structured or unstructured while the next one is processing the previously collected data using Hadoop. The final layer aims to analyze Big Data by using analytical business and modeling tools.

Organizations are serious about big data as they need a huge amount of quantifiable data such as Hadoop. Moreover, it is essential to have competent employees with science skills and are able to maintain privacy, and understandability of the business environment. Alfouzan (2015) defines Hadoop as a document system that allows various types of data. Hadoop demonstrates data which will possibly become and might be an opportunity to be overbearing as well as coordinating and available for huge information. Hence, it is possible that analytics could improve the benefits of business insights. Besides, a big-data-analytic technique that creates a business context in the phase of the significance level using Hadoop within a grocery market (Dinh, Karmakar, Kamruzzaman, & Stranieri, 2015; Shabbir & Gardezi, 2020). This suggested method entails 3 steps. The first technique represents the business milieu by stipulating the keywords which will be employed in the query to gather data. The second means gathering pertinent data to the business context from all imaginable groceries while the third step will be analyzing the data. All the responses from the respective customers or clients are compiled and analyzed using Hadoop and they stated that the three-step technique fundamentally upsurges the amount of the composed data and this leads to higher revenue values (upGrade, 2019; Straetgy Analytics, 2018)).

Sarnovsky and Paralic (2015) revealed that the prominent execution of the "MapReduce" is the Hadoop framework. This framework comprises diverse memory data processing and it is believed that a huge data relies on this as it can process big data swiftly and effectively. It is a known fact that big data encounter problems as they have to record, memorize, search and analyze huge data. Additionally, new data will be formed in every analysis process. Occasionally big data analysis processes comprise huge, lengthy data and computing models. For instance, the computing model "MapReduce" targets on parallel processing of big extended data. This uses crucial applications like searching in DNA strings. Consequently, big data depend on the implementation and procedures of difficult manners compared to small datasets.

3.2 The Employment of Big Data Analytics at IBM

Shabbir and Gardezi (2020) advocate that big data techniques facilitate operational progress and heighten the revenue of the organizations as the software provides a greater understanding of the business and develops business growth. These organizations can collect data from their customers to improve their business. This digital era allows big data analysis and IT techniques to easily communicate and distribute information between different corporations. For instance, IBM developed a cooperating and reacting methodology to help retirees and executed this technique in Italy for people who assistance with, healthcare and other emergency services. This technology depends on sensors disseminated within retirees' home vicinity to measure heat, O2 level, clamminess, water, and electricity.

The technology will also detect and alert any abnormal thing in these patterns accordingly. Strategy Analytics (2018), stated that such a collaborative responsive technique has played a crucial role in reducing the assistance cost of retired people by up to 30 percent. In addition, they also explained that this collaboration also helps to deliver the required in a shorter time with less disbursement. Meanwhile, Strategy Analytics, (2018) discussed commercial-oriented databases for abstraction business aims. The research chose the database to support measuring important topics in the industry with the concern of immense data.

It also displayed that specific types of companies may be classified into objective groups relating to big data. Many companies are interested in big data analytics to recover their business, like protuberant companies IBM and Microsoft. IBM provides big data options which enable users to store, manage, and analyze data through several resources. It has a good interpretation of business intelligence also healthcare areas. Sun and Huo, (2021) suggested that Microsoft showed influential work in cloud computing activities and techniques. They also added that Facebook and Twitter are also good examples where various data from users' profiles are used to increase their revenue.

3.3 The Performance of Data-Driven Companies

Many are skeptical and wonder how using big data will progress business performance. Shabbir and Gardezi (2020) explained that the business press has many data-driven case studies. However, people's attitude where no one takes the mentioned question seriously poses a serious problem. They also added that to bridge this gap, a team in a specific digital business center must work with McKinsey's and display a test hypothesis about driven-data companies if they are doing better performers. The researchers conducted a structured interview with 330 administrators of public companies to find out about their technology, and management policies, and collect executed data by using the yearly reports and autonomous sources. The researchers found that on average, 5% are more productive and 6% are more profitable than other competitors. An extensive concatenation of situations and methods in all industries and the companies in the highest position of industry who use data-driven decision-making. This different execution sticks around strongly after considering capital, purchased services, and labor contributions.

Big data analytics can improve airline agencies, too. The airlines depend on the flight industries. For instance, the travelers and crew will be surly stuck if an airplane land before the staff is ready. Based on the aviation team's observation, it was predicted that 10 % of flights have a 10-minute buffer time between the evaluated time for arrival and the real-time arrival. Indeed, they have another demand for their time and alertness. As a resolution, the airline turns out into Passur Airlines as a provider of support-decision technology for the airline industries. Passur showed their influx forecasts as a service called "RightETA" in early 2001. Based on the data collected, the company computes the times by consolidating above board available information about weather, flights schedule, and other factors from networks of a radar station that is installed next to the airports to collect data from all planes in the sky. Although Passur started with a few installations, by 2012 they collect a huge range of data about all planes bringing a huge amount of digital data. Additionally, Passur stored all collected data to have multidimensional data spanning more than 10 years. Passur confirms that qualifying the airlines to know when their planes are going to land and accordingly plan the schedule worth many billion dollars. Shabbir and Gardezi (2020) indicated that it is an apparent formula that using big data analytics will lead to the best prediction, and the best prediction produces the best decision.

In the business and academic areas, big data analytics and business intelligence are amalgamated fields that became generally momentous. To support decision-making, corporations are enduringly striving to make insight from extending variety, volume, and velocity, the three Vs. Organizations emphasize identifying trends to advance competitive advantage and get openings related to data analytics. However, researchers argued that leveraging technology benefits and the ability to make the best use of new agility trends. Popovic et al. (2018) argued that understandings from big data analytics can enable business process oversight and measurement as well as strengthen quality management and the relationship with customers.

3.4 Interpretations

Big statistics analytics is a brand new fashion that begin to expose the scene withinside the remaining decade, many clever corporations try and put into effect massive statistics analytics to be withinside the race in the business environment, so the concept here is a way to be agile to put into effect massive statistics analytic to enhance business. However, many corporations did not achieve massive statistics analytics due to the fact that they didn't have the specified infrastructure to put into effect Hadoop and different corporations didn't take into account the private license through stepping into unauthorized information. The chance in making use of massive statistics analytics is glaringly the privateness aspects, now no longer all of the required facts may be without difficulty accessed so organizations need to recall the policies of taking facts from different websites or individual personal accounts. So the essential query that organizations ask is "How to be agile in the use of massive statistics analytics?". The manual is pure, statistics pushed choice cause the great selections which make administrators foster this fact, and organizations that discover the way to merge the understanding area with statistics analytics will roll far from their competitors due to this fact. Some organizations perhaps even don't dominate the desired technology to maintain and examine the valuable facts, moreover, they didn't have the absolute ability and approaches to gather statistics and extract a fee from the massive quantity of statistics.

The trouble in using Hadoop in massive records analytics is the incorporation among Hadoop and the preceding ERP structures of the organizations, a possible scenario (Coursera, 2022; Strategy Analytics, 2018) factors to an incorporated structure that integrates Big Data technology in actual structures, agencies need to be agile once they merge the antique infrastructure with the brand new one. Once Big statistics may be used with admiration to all of the stated risks, businesses will recognize how a whole lot all of a sudden sales will increase, and purchaser offerings will constantly be scanned from billions of people, additionally, it'll assist in forecasting and making plans to attain the satisfactory expectation in online sales, and the principle advantage of massive statistics is the aggressive benefits that may be completed with the aid of using being attentive to the purchaser's thoughts and guide their thoughts with the aid of using introducing to them what they want.

4. Research Gap

The weak point withinside the surroundings of large information are massive due to the dearth of organization's competencies and technology, the lack of understanding approximately large information, the absence of enjoying the large information analytics utilization and the internal reasons from managers into outside reasons from the delivery aspects of large information. The weak point withinside the surroundings of large information results in filling the space withinside the presence of appropriate technology that can overcome the obstacles mentioned withinside the literature.

5. Conclusion

It is believed that the manipulation of big data in economic development methods can promote responsiveness and economic growth implementation. When companies make use of huge data analysis, they can predict the preferable and unpredictable conclusion, and upgrade the process performance. The change toward big data analytics shore the performance predictors who permit decision makers to retrieve more data considering the acts and activities while endeavoring the organization's goals. Employers are aware that organizations gain good returns when they reduce cost, implement effective operational plans, reduce inventory amounts, and have the best organizational labor force as well as eradicate profligate funds. These efforts boost operation efficiency. The ability of data analytics like data resourcing, accessing, integrating, and delivering as well as organizational aspects heighten the use of big data analytics in procedures and strategies. Although not all established and successful companies use big data to modify their decision-making, it educates organizations to execute big data to develop business from all angles. In other words, big data allow organizations to be abreast with new trend settings.

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