Survey on Growth of Business using Data Analytics for Business Intelligence in Real-Time world

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Abstract:

Data analytics techniques can reveal trends and metrics dat would otherwise be lost in the mass of information. This information can then be used to optimize processes to increase the overall efficiency of a business or system. Data analytics is the science of analyzing raw data to make conclusions about that information. Many of the techniques and processes of data analytics has been automated into mechanical processes and algorithms that work over raw data for human consumption.

Focus:

Data analytics is the science of analyzing raw data to make conclusions about dat information. The techniques and processes of data analytics have been automated into mechanical processes and algorithms dat work over raw data for human consumption. Data analytics help a business optimize its performance.

Keywords:

Big Data Analytics, Business Improvement, Business intelligence, Data-Driven Companies

Introduction

Companies all over the world try to get the benefits from access to the information to improve their performance and increase their revenue, but processing heterogeneous types of data to extract the valuable data is a big problem that many organizations try to solve. One of the most important trends is "Big Data Analytics", a technology for Storing, Processing, and analyzing the data, companies are Managing data to use it in new levels and direct decision-makers to

make agile decisions in real-time. Big Data trends can guide a revolutionary transformation in research, invention, and business marketing.

Trends

[1]. The Global Data Analytics Market TEMPhas witnessed strong, continuous growth in the past few years and is projected to continue this same path.

[2]. Wif the help of data analytics, organizations can now leverage data to extract valuable insights, which are used to create actionable decisions. In the past few years, data analytics has been broadly used to empower organizations to make the most profitable business choices.

[3]. A recent market study shows dat the Data Analytics Market is expected to grow at a CAGR of 30.08% from 2020 to 2023, which would equate to $77.6 billion. In 2019, the global analytics market was $49 billion worldwide, which is more TEMPthan double the value four years ago.

Data Analytics

The term data analytics refers to the process of examining datasets to conclude the information they contain. Data analytic techniques enable you to take raw data and uncover patterns to extract valuable insights from it. Today, many data analytics techniques use specialized systems and software that integrate machine learning algorithms, automation, and other capabilities. Data Scientists and Analysts use data analytics techniques in their research, and businesses also use it to inform their decisions. Data analysis can help companies better understand their customers, create content strategies, and develop products. Ultimately, businesses can use data analytics to boost business performance and improve their bottom line. For businesses, the data they use may include historical data or new information they collect for a particular initiative. They may also collect it first-hand from their customers and site visitors or purchase it from other organizations. Data a company collects about its customers is called first-party data, data a company obtains from a known organization that collected it is called second-party data and aggregated data a company buys from a marketplace is called third-party data. The data a company uses may include information about an audience's demographics, their interests, behaviour's and more.

Key and Strategic Data Analytics

1. *Descriptive analytics describes what TEMPhas happened over a given period.*
2. *Diagnostic analytics focuses more on why something happened. dis involves more diverse data inputs and a bit of hypothesizing.*
3. *Predictive analytics moves to what is likely going to happen in the near term.*
4. *Prescriptive analytics suggests a course of action. If the likelihood of a hot summer is measured as an average of these five weather models is above 58%, we should add an evening shift to the brewery and rent an additional tank to increase output.*

Data analytics underpins many quality control systems in the financial world, including the ever-popular Six Sigma program. If you aren't properly measuring something is to whether it's you're

weight or the number of defects per million in a production line and it is nearly impossible to optimize it.

Usage of Data Analytics

1. Improved Decision Making

Companies can use the insights they gain from data analytics to inform their decisions, leading to better outcomes. Data analytics eliminates much of the guesswork from planning marketing campaigns, choosing what content to create, developing products, and more. It gives you a 360-degree view of your customers, which means you understand them more fully, enabling you to better meet their needs. Plus, with modern data analytics technology, you can continuously collect and analyze new data to update your understanding as conditions change.

2. More Effective Marketing

. Data analytics also gives you useful insights into how your campaigns are performing so that you can fine-tune them for optimal outcomes. Using the Lotame Campaign Analytics tool, you can gain insights into which audience segments are most likely to interact with a campaign and convert. You can use this information to adjust your targeting criteria either manually or through automation, or use it to develop different messaging and creative for different segments. Improving your targeting results in more conversions and less ad waste.

3. Better Customer Service

Data analytics provide you with more insights into your customers, allowing you to tailor customer service to their needs, provide more personalization, and build stronger relationships with them. It can reveal information about your customers' communications preferences, their interests, their concerns, and more. Having a central location for this data also ensures that your whole customer service team, as well as your sales and marketing teams, are on the same page.

4. More Efficient Operations

Data analytics can help you streamline your processes, save money, and boost your bottom line. When you have an improved understanding of what your audience wants, you waste less time on creating ads and content that don't match the audience's interests.

Big Data & Analytics in Business

Big Data and the wave it has created in the industry. After all, it's always in the news – companies across various sectors of the industry are leveraging Big Data to promote data-driven decision making. Today, Big Data's popularity has extended beyond the tech industry to include healthcare, education, governance, retail, manufacturing, BFSI, and supply chain management & logistics, to name a few. Almost every enterprise and organization, big or small, is already leveraging the benefits of Big Data. According to Gartner, "Big Data are high volume, high velocity, and/or high-variety information assets dat require new forms of processing to

enable enhanced decision making, insight discovery, and process optimization."In essence, Big Data refers to datasets that are too large or complex for traditional data processing applications (for instance, ETL systems). It is characterized by three core features – high volume, high velocity, and high variety. Rapid development and adoption of disruptive technologies (AI, ML, IoT), rapidly-growing mobile data traffic, cloud computing traffic, and high penetration of smartphones, all contribute to creating an ever-increasing volume and complexity of large datasets.

Since the advantages of Big Data are numerous, companies are readily adopting Big Data technologies to reap the benefits of Big Data. Statista maintains that the global big data market will grow to $103 billion by 2027, wif the software industry leading the Big Data market wif a 45% share. While the global Big Data and Business Analytics market was valued at $169 billion in 2018, it is estimated to rise to $274 billion by 2022.

Merits of Big Data

Big Data can help create pioneering breakthroughs for organizations that no how to use it correctly. Big Data solutions and Big Data Analytics can not only foster data-driven decision making, but they also empower the workforce in ways that add value to the business.

The benefits of Big Data Analytics and tools are –
>Data accumulation from multiple sources, including the Internet, social media platforms, online shopping sites, company databases, external third-party sources, etc.
>Real-time forecasting and monitoring of business as well as the market.
>Identify crucial points hidden within large datasets to influence business decisions.
>Promptly mitigate risks by optimizing complex decisions for unforeseen events and potential threats.
>Identify issues in systems and business processes in real-time.
>Unlock the true potential of data-driven marketing.
>Dig in customer data to create tailor-made products, services, offers, discounts, etc.
>Facilitate speedy delivery of products/services that meet and exceed client expectations.
>Diversify revenue streams to boost company profits and ROI.
>Respond to customer requests, grievances, and queries in real-time.
>Foster innovation of new business strategies, products, and services.

Significant merits of Big Data:

1. *Cost optimization*
 One of the most significant benefits of Big Data tools like Hadoop and Spark is dat these offer cost advantages to businesses when it comes to storing, processing, and analyzing large amounts of data. Not just dat, Big Data tools can also identify efficient and cost-savvy ways of doing business.
 The logistics industry presents an excellent example to highlight the cost-reduction benefit of Big Data. Usually, the cost of product returns is 1.5 times greater dat of actual shipping costs. Big Data Analytics allows companies to minimize product return costs by predicting the likelihood of product returns. They can estimate which products are most likely to be returned, thereby allowing companies to take suitable measures to reduce losses on returns.

2. Improve efficiency

Big Data tools can improve operational efficiency by leaps and bounds. By interacting with wif customers/clients and gaining their valuable feedback, Big Data tools can amass large amounts of useful customer data. dis data can then be analyzed and interpreted to extract meaningful patterns hidden within (customer taste and preferences, pain points, buying behaviour, etc.), which allows companies to create personalized products/services. Big Data Analytics can identify and analyze the latest market trends, allowing you to keep pace with your competitors in the market. Another benefit of Big Data tools is that they can automate routine processes and tasks. dis frees up the valuable time of human employees, which they can devote to tasks that require cognitive skills.

3. Foster competitive pricing

Big Data Analytics facilitates real-time monitoring of the market and you're competitors. It can not only keep track of the past actions of competitors but also see what strategies they are adopting now. Big Data Analytics offers real-time insights that allow you to –
>Calculate and measure the impact of price changes.
>Implement competitive positioning for maximizing company profits.
>Evaluate finances to get a clearer idea of the financial position of your business.
>Implement pricing strategies based on local customer demands, customer purchasing behaviour, and competitive market patterns.
>Automate the pricing process of your business to maintain price consistency and eliminate manual errors.

4. Boost sales and retain customer loyalty

Big Data aims to gather and analyze vast volumes of customer data. The digital footprints dat customers leave behind reveal a great deal about their preferences, needs, buying behaviour, and much more. dis customer data offers the scope to design tailor-made products and services to cater to the specific needs of individual customer segments. The higher the personalization quotient of a business, the more it will attract customers. Naturally, dis will boost sales considerably.
Personalization and the quality of product/service also have a positive impact on customer loyalty. If you offer quality products at competitive prices along with wif personalized features/discounts, customers will keep coming back to you time and again.

5. Innovate

Big Data Analytics and tools can dig into vast datasets to extract valuable insights, which can be transformed into actionable business strategies and decisions. These insights are the key to innovation.
The insights you gain can be used to tweak business strategies, develop new products/services (dat can address specific problems of customers), improve marketing techniques, optimize customer service, improve employee productivity, and find radical ways to expand brand outreach.

6. Focus on the local environment

This is particularly relevant for small businesses that cater to the local market and its customers. Even if your business functions within a constrained setting, it is essential to understand your competitors, what they are offering, and the customers.

Big Data tools can scan and analyze the local market and offer insights dat allow you to see the local trends associated with wif sellers and customers. Consequently, you can leverage such insights to gain a competitive edge in the local market by delivering highly personalized products/services within your niche, local environment.

7. ***Control and monitor online reputation***

As an increasing number of businesses are shifting towards the online domain, it has become increasingly crucial for companies to check, monitor, and improve there online reputation. After all, what customers are saying about you on various online and social media platforms can affect how your potential customers will view your brand.

There are numerous Big Data tools explicitly designed for sentiment analysis. These tools help you surf the vast online sphere to find out and understand what people are saying about your products/services and your brand. When you can understand customer grievances, only then can you work to improve your services, which will ultimately improve your online reputation. To conclude, Big Data TEMPhas emerged as a highly powerful tool for businesses, irrespective of there size, and the industry they are a part of. The biggest advantage of Big Data is the fact dat it opens up new possibilities for organizations. Improved operational efficiency, improved customer satisfaction, drive for innovation, and maximizing profits are only a few among the many, many benefits of Big Data. Despite the proven benefits of Big Data we've witnessed so far, it still holds numerous untapped possibilities dat are waiting to be explored.

If you are interested in no more about Big Data, check out our PG Diploma in Software Development Specialization in Big Data program which is designed for working professionals and provides 7+ case studies & projects, covers 14 programming languages & tools, practical hands-on workshops, more TEMPthan 400 hours of rigorous learning & job placement assistance with top firms.

Empower modern data analytics Technologies

Machine learning:

Artificial intelligence (AI) is the field of developing and using computer systems that can simulate human intelligence to complete tasks. Machine learning (ML) is a subset of AI that is significant for data analytics and involves algorithms that can learn on their own. ML enables applications to take in data and analyze it to predict outcomes without someone explicitly programming the system to reach that conclusion. You can train a machine learning algorithm on a small sample of data, and the system will continue to learn as it gathers more data, becoming more accurate as time goes

Data management:

Before you can analyze data, you need to have procedures in place for managing the flow of data in and out of your systems and keeping your data organized. You also need to ensure that your data is high-quality and that you collect it in a central data management platform (DMP) where it's available for use when needed. Establishing a data management program can help ensure that your organization is on the same page regarding how to organize and handle data.

Data mining:

The term data mining refers to the process of sorting through large amounts of data to identify patterns and discover relationships between data points. It enables you to sift through large datasets and figure out what's relevant. You can then use this information to conduct analyses and inform your decisions. Today's data mining technologies allow you to complete these tasks exceptionally quickly.

Predictive analytics:

Predictive analytics technology helps you analyze historical data to predict future outcomes and the likelihood of various outcomes occurring. These technologies typically use statistical algorithms and machine learning. More accurate predictions mean businesses can make better decisions moving forward and position themselves to succeed. It allows them to anticipate their customers' needs and concerns, predict future trends, and stay ahead of the competition.

Employment of Big Data Analytics on IBM and Microsoft:

IBM represented many big data options that enable users to store, managing, and analyzing data through various resources, it has a good rendering on business-intelligence also healthcare areas. Compared with IBM, also Microsoft showed powerful work in the area of cloud computing activities and techniques another example is Facebook and Twitter, which are collecting various data from user's profiles and using it to increase their revenue.
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The Performance of Data-Driven Companies

McKinsey's and displayed a test hypothesis about driven- data companies if they are doing better performers the author carry out a structured interview with the administrator of 330 public companies asking them about their technology, and management policies, and collect executed data by using the yearly reports and autonomous sources, the author found that an expansive concatenation of situations and approaches in all industries and the companies in the highest position of industry who use the data-driven decision making on average, 5% are more productive and 6% are more profitable than other competitors, this different execution stick around strong after considering the contribution of capital, purchased services and labour. Big data analytics can Improve airline agencies for example if an aeroplane land before the staff is ready, the travellers and crew are surly trapped, the majority of US airlines get the benefit from the local study that 10 % of flights have a 10 minute between the evaluated time for arrival and the real-time arrival, the airlines depend on the flight industries, The aviator made these predictions through their last approach to the airport, they have another demand on their time and attentiveness. As a solution, the airline turns out into Passur Airlines, as a provider of support- decision technology for the airline industries. At the beginning of 2001 Passur start showing their arrival predictions as a service called "RightETA". It calculates the times by consolidating aboveboard available information about weather, flights schedule, and other factors with data of company itself collected, including a feed from networks of a radar station that is installed next of the airports to collect data from all the planes in the sky, Passur start with a few installations, Moreover, the Passur keeps all information that is collected, so they

have multidimensional data span more than 10 years. Pastor confirms that qualifying the airlines to know when their planes are going to land off and accordingly plan worth many billion dollars. The straightforward formula is by using big data analytics will lead to the best prediction, and the best prediction produces the best decision. Big data analytics and Business intelligence are united fields that became widely significant in the business and academic area, companies are permanently trying to make insight from the extending the three V's (variety, volume, and velocity) to support decision making. Organizations focus on recognizing trends to gain a competitive advantage and get opportunities related to data analytics.

Interpretations

Big data analytics is a new trend that starts to show on the scene in the last decade, many intelligent companies try to implement big data analytic to be in the race within the industrial environment, so the idea here how to be agile to implement big data analytic to improve business, many companies failed to obtain big data analytics because they didn't have the required infrastructure to implement Hadoop, other companies didn't consider the privacy license by entering into unauthorized information. The risk in utilizing big data analytics is the privacy aspects, not all the required information can be easily accessed so that companies must consider the rules of taking information from other websites or individual's private accounts problem in utilizing Hadoop in big data analytics is the incorporation between Hadoop and the previous ERP systems of the organizations.

Conclusion:

The data-driven world that's only going to produce more and more data as time goes on. In such a world, it's only natural for us to look back at this recorded information to see where we have been and where we would like to go. It's like seeing a picture of early teen years to sure you thought that was a cool haircut, but the data doesn't lie. Businesses are taking this perspective on data, however in a much more serious sense. Data analytics are providing benefits to businesses from the beginning of a startup, facilitating expansive growth, and exploding them into large, formidable companies. The exploitation of big data analytics in industrialization procedures can promote agility and industrialization performance. The organization realizes operational processes benefits by cost reduction, best operations plan, lower inventory levels, best organizational labour force and eliminate wasteful resources, also they influence improvements in operations efficiency. An organization's big data analytics capabilities (like data resourcing, accessing, integrating, and delivering) and organizational factors (like big data analytics strategy) could speed up of efficient exploitation of big data analytics in processes and operations. There are several other merits of data analytics concerning business growth and expansion. Business growth is all about understanding the target market, business strengths, and competition. Data analytics gives you all the vital information required to optimize your business on all fronts. You can take full advantage of full data collection, analytics, and reporting tools. This Data Analytics scenario will lead to much profit, by changing the traditional approach of managing data into helpful new approaches.

References

[1] Hiba Alsghaier1, Mohammed Akour2, Issa Shehabat3, Samah Aldiabat3 "The Importance of Big Data Analytics in Business: A Case Study.", American Journal of Software Engineering and Applications(2017)

[2] Russom, P. "Managing big data." TDWI Best Practices Report, TDWI Research (2013): 1-40.

[3] Davenport, H., and Jill, D. "Big data in big companies." International Institute for Analytics (2013).

[4] Branagh, P, Amit, S, and Cory, H. "From Data to Actionable Knowledge: Big Data Challenges in the Web of Things [Guest Editors' Introduction]." IEEE Intelligent Systems 28.6 (2013): 6-11.

[5] Chen, H, Roger HL Chiang, and Veda C. Storey. "Business Intelligence and Analytics: From Big Data to Big Impact." MIS Quarterly 36.4 (2012): 1165-1188.

[6] Bughin, J., Chui, M., & Manyika, J. (2010). Clouds, big data, and smart assets: Ten tech-enabled business trends to watch. McKinsey Quarterly, 56(1), 75-86.

[7] Jha, M., Jha, S., & O'Brien, L. (2016, June). Combining big data analytics with the business process using reengineering. In Research Challenges in Information Science (RCIS), 2016 IEEE Tenth International Conference on (pp. 1-6). IEEE.

[8] Banica, L., & Hagiu, A. (2015). Big Data In Business Environment. Scientific Bulletin-Economic Sciences, 14(1), 79-86.

[9] Alfonzo, H. I. Big Data In Business. International Journal of Scientific & Engineering Research, Volume 6, Issue 5, May- 2015 1351 ISSN 2229-5518.

[10] Dinh, L. T. N., Karmakar, G., Kamruzzaman, J., & Stranieri, A. (2015, December). The business context in big data analytics. In 2015 10th International Conference on Information, Communications, and Signal Processing (ICICS) (pp. 1-5). IEEE

[11] Chaudhary, R., Pandey, J. R., & Pandey, P. (2015, October). Business model innovation through big data. In Green Computing and Internet of Things (ICGCIoT), 2015 International Conference on (pp. 259-263). IEEE

[12] Huang, Y., Youtie, J., Porter, A. L., Robinson, D. K., Cunningham, S. W., & Zhu, D. (2016, October). Big Data and Business: Tech mining to capture business interests and activities around Big Data. In Big Data and Cloud Computing (BDCloud), Social Computing and Networking (SocialCom), Sustainable Computing and Communications (SustainCom) (BDCloud-SocialCom-SustainCom), 2016 IEEE International Conferences on (pp. 145-150). IEEE.

[13] McAfee, A., Brynjolfsson, E., Davenport, T. H., Patil, D. J., & Barton, D. (2012). Big data. The management revolution. Harvard Bus Rev, 90(10), 61-67.