IJCRT.ORG ISSN : 2320-2882

INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS (IJCRT)

An International Open Access, Peer-reviewed, Refereed Journal

A STUDY ON BIG DATA & ANALYTICS

Mr. Nimmakayala Gopala Krishna, M.Sc., M.Phil.,
Lecturer in Computer Science
Government Degree College
MANDAPETA – 533 308

Abstract:
Big data and analytics have revolutionized the way businesses operate, from understanding customer behavior to streamlining internal operations. This paper explores the concept of big data, its importance in today's business landscape, and how analytics can be used to extract valuable insights from it. We also examine the challenges associated with big data analytics and some of the key technologies and tools used to overcome them. Our analysis suggests that big data and analytics will continue to shape the future of business, making it essential for companies to invest in the necessary infrastructure and talent to stay competitive.

Keywords:
Big Data, Analytics, Technologies, Processing

Introduction:
The advent of big data has transformed the business world, enabling organizations to collect and analyze vast amounts of data from various sources, including social media, sensors, and other digital channels. Big data refers to the large volumes of structured and unstructured data that organizations collect and analyze to gain insights that can inform decision-making. The ability to analyze big data has become a strategic priority for businesses, as it provides valuable insights into customer behavior, market trends, and internal operations.

Importance of Big Data Analytics:
Big data analytics has several benefits, including improved decision-making, enhanced customer experiences, and increased operational efficiency. Analytics can be used to identify patterns and trends in large datasets, providing insights that can inform business strategy. For instance, retailers can analyze customer data to identify trends in purchasing behavior, enabling them to offer personalized recommendations and improve customer experiences. Similarly, healthcare providers can use big data analytics to identify patterns in patient data, leading to more accurate diagnoses and improved treatment outcomes.

"Big Data is an evolving term that describes any voluminous amount of structured, semi-structured and unstructured data that has the potential to be mined for information". In simple words, Big Data is a pure technological term. Big Data is often characterized by 3Vs:
(1) Velocity,
(2) Variety and
(3) Volume.

"Hadoop is an open-source software framework for storing data and running application on clusters of commodity hardware. It provides massive storage for any kind of data, enormous processing power and the ability to handle virtually limitless concurrent tasks or jobs". He covered five digital forces namely:
• Big Data Analytics
• Cloud Computing
• Social Media
• Robotic Process Automation(RPA)

• Mobility and pervasive computing

Big Data Analytics: Big Data Analytics is the process of examining large and varied data sets i.e., big data to uncover hidden patterns, unknown correlations, market trends, customer preferences and other useful information that can help organizations make more informed business decisions. The main purpose of Big Data Analytics is to make better decision.

Cloud Computing: In the simplest terms, cloud computing means storing and accessing data and programs over the Internet instead of your computer's hard drive. The cloud is just a metaphor for the Internet. Why Cloud? Devices & Location Independent Pay as you use Low capital expenditure Utility based Reliability Scalability & Sustainability Highly automated

Social media: The "social" part refers to interacting with other people by sharing the information with them and receiving information from them. The "media" part refers to an instrument of communication, like the internet(while TV, radio and newspapers are examples of traditional forms of media). Social media are web based communication tools that enable people to interact with each other by both sharing and consuming information..

Robotic Process Automation(RPA): Robotic Process Automation is the use of software with Artificial Intelligence(AI) and machine learning capabilities to handle high- volume, repeatable task that previously required a human to perform. RPA automates the process by executing tasks quickly and consistently with a high degree of precision, accuracy and reliability that exceeds human capability. TCS uses four Robot Siblings that are as follows: • ROBO Extracter: Content to System • ROBO Formater: System to Content • ROBO Uniter: System and Document Consolidation • ROBO Impresario: Sequencing, Workload Management & Analytics

Mobility and pervasive computing: Mobility and pervasive computing is nothing but connected a workplace, enabling better strategy execution through anytime anywhere access to information and solutions through mobile devices.

Mobility solutions focus on helping the organizations achieve the following business objectives:
• Improve Productivity and Efficiency
• Enhance Customer Experience
• Improve Service Delivery

Challenges of Big Data Analytics:

Despite its benefits, big data analytics also presents several challenges, including data quality, security, and privacy. Managing large volumes of data can be a significant challenge, as it requires advanced infrastructure and expertise. Ensuring data quality is also critical, as inaccuracies in data can lead to incorrect insights and poor decision-making. Data security and privacy are also major concerns, as organizations must protect sensitive information from cyber threats and comply with data protection regulations.

Key Technologies and Tools:

To overcome these challenges, organizations use a range of technologies and tools to manage and analyze big data. These include data warehousing, data mining, machine learning, and natural language processing. Data warehousing involves storing large volumes of data in a centralized location, making it easier to manage and analyze. Data mining involves extracting patterns and trends from large datasets, while machine learning uses algorithms to identify patterns automatically. Natural language processing enables computers to understand and interpret human language, making it easier to analyze text data.

Conclusion:

Big data and analytics have become essential for businesses looking to gain a competitive edge in today's market. The ability to collect and analyze large volumes of data can provide valuable insights into customer behavior, market trends, and internal operations. However, managing and analyzing big data presents several challenges, including data quality, security, and privacy. To overcome these challenges, organizations must invest in the necessary infrastructure and talent to manage and analyze big data effectively.

References:

Chen, H., Chiang, R. H., & Storey, V. C. (2012). Business intelligence and analytics: from big data to big impact. MIS quarterly, 36(4), 1165-1188.

Davenport, T. H., & Patil, D. J. (2012). Data scientist: the sexiest job of the 21st century. Harvard business review, 90(10), 70-76.

Gandomi, A., & Haider, M. (2015). Beyond the hype: Big data concepts, methods, and analytics. International Journal of Information Management, 35(2), 137-144.

Katal, A., Wazid, M., & Goudar, R. H