

Exploring Big Data Role in Modern Business Strategies: A Survey with Techniques and Tools

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Abstract: *Big Data has revolutionized business intelligence and modern strategies by transforming vast, complex datasets into actionable insights. This paper explores the evolution of Big Data, from its foundational concepts to its integral role in decision-making, customer personalization, operational efficiency, risk management, and product development. The study delves into the Big Data tenets of "Volume," "Variety," "Velocity," and "Value," and how they affect data administration, processing, and storage. Data visualization tools like as Tableau and Power BI are covered, along with important technologies such as Hadoop and Apache Spark, as well as cloud-based solutions such as AWS and Microsoft Azure. Real-time applications in IoT, social media, healthcare, and environmental monitoring further underscore Big Data's pervasive impact. Additionally, the paper examines data collection, integration, and processing techniques, including ETL processes, imputation methods, feature selection, and analytics methodologies spanning descriptive, predictive, and prescriptive analytics. This work underscores its transformative potential across industries by addressing the challenges and opportunities within the Big Data ecosystem*

Keywords: Big data, role of modern business, Application, challenges and limitations of Big Data