THE ROLES OF BIG DATA IN FINANCIAL MANAGEMENT BY BUSINESS ENTREPRENEURS IN UYO METROPOLIS: ASSESSING ITS POTENCY IN STREAMLINING OPERATIONS AND REDUCING COST.

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ABSTRACT

This study examined the roles of Big Data in financial management and assessed its potency in streamlining operations and reducing operational costs. The rapid expansion of digital technologies has generated vast volumes of structured and unstructured data, challenging traditional financial management systems that rely primarily on historical and periodic reports. The study adopted a conceptual and analytical approach by reviewing existing literature on Big Data analytics, financial management practices, operational efficiency, and cost optimization. Findings revealed that Big Data enhances financial decision-making through predictive analytics, real-time monitoring, improved budgeting accuracy, and advanced risk management systems. It also strengthens fraud detection mechanisms and improves the quality and timeliness of financial reporting. Furthermore, the study found that Big Data significantly streamlines operations by automating repetitive processes, improving supply chain coordination, optimizing resource allocation, and minimizing inefficiencies. These improvements contribute directly to cost reduction, enhanced productivity, and better financial control. Despite challenges related to data governance, cybersecurity, and technological integration, the study concludes that effective adoption of Big Data analytics provides organizations with a strategic advantage, promotes financial sustainability, and strengthens long-term competitiveness in dynamic business environments. The study concluded that big data plays a transformative role in modern financial management by enhancing decision-making, improving operational efficiency, and significantly reducing operational costs. One of the recommendations made was that organizations should invest in modern data storage systems, cloud computing platforms, and advanced analytics tools to effectively manage large and complex financial datasets

KEYWORDS: Big Data, Financial Management, Business Entrepreneurs, Uyo Metropolis, Streamlining Operations, Reducing Cost.

INTRODUCTION

Big data has become a disruptive force in contemporary financial management, radically altering the way businesses gather, handle, evaluate, and apply financial data. In the past, financial management used historical financial statements, periodic reports, and structured data from accounting systems to inform forecasting, budgeting, and strategic decision-making. However, enormous amounts of organized and unstructured data have been produced by the quick development of digital technology, online transactions, mobile banking, business systems, and social media platforms. Financial managers can use these various data streams to increase operational efficiency, enhance risk assessment, optimize expenses, and assist strategic planning thanks to big data, which is defined by its volume, velocity, diversity, validity, and value. Big data analytics is now essential for attaining financial sustainability and competitive advantage in a variety of settings, including public sector organizations, banking institutions, and corporate finance departments. Improving decision-making processes is one of big data's main functions in financial management. Complex factors like consumer behavior, interest rates, inflation, market swings, and regulatory changes are frequently taken into account while making financial decisions. Financial managers may produce more accurate projections and scenario evaluations by analyzing historical and real-time data using predictive modeling, machine learning algorithms, and advanced analytics. This raises the standard of financial planning and budgeting. Organizations can utilize predictive analytics to foresee cash flow changes, investment risks, and revenue patterns rather than depending just on past trends. Big data, thus, lowers uncertainty and facilitates evidence-based financial decision-making, enabling. Traditionally, systematic financial reporting, accounting records, and periodic forecasts have been the foundation of financial management, which is defined as the effective and efficient acquisition and use of funds to accomplish organizational objectives. However, unstructured and semi-structured data, including language, sentiment from social media, transaction histories, and sensor data from linked devices, are frequently difficult for traditional financial systems to handle and interpret. Big data analytics expands this scope by integrating diverse data sources to produce actionable insights, predictive forecasts, and pattern recognition that enhance decision-making quality (Akter & FossoWamba, 2019). Big data has therefore been used more and more by financial institutions, enterprises, and small organizations to improve strategic planning, streamline operations, implement stronger risk controls, increase compliance, and cut down on wasteful spending.

The recent digital transformation spurred by economic globalization, financial innovation, and competitive pressures has compelled organizations to adopt data-driven financial strategies. Financial leaders now recognize that harnessing big data not only improves efficiency but also creates competitive advantage (McAfee & Brynjolfsson, 2017). Real-time analytics, for instance, allow businesses to track cash flows, evaluate financial performance indicators, and identify irregularities that can indicate fraud or inefficiencies in operations. Big data also enables businesses to automate repetitive financial procedures, which lowers operational expenses and human error.

One of the 21st century's most revolutionary technological advancements, artificial intelligence (AI) is drastically altering how businesses run and optimize their processes. Because it has a direct impact on customer happiness, cost control, productivity, and

competitive advantage, operational efficiency is essential to an organization's success. Artificial Intelligence (AI), which is defined as the emulation of human intelligence processes by machines, especially computer systems, allows organizations to automate complicated processes, analyze enormous datasets in real time, improve workflows, and make predictive judgments. The capacity of AI to improve speed, accuracy, scalability, and adaptability in a variety of functional domains, such as finance, manufacturing, supply chain, healthcare, and service industries, is what makes it so effective in streamlining operations.

The functions of big data in financial management are thoroughly covered in this introduction, which also evaluates the technology's potential to cut expenses and streamline processes. It places the conversation in the larger body of research on financial analytics, corporate decision-making, and digital transformation. This demonstrates how financial managers are utilizing big data tools to improve performance, control risks, and accomplish strategic objectives.

Concept of Big Data

Big Data is defined as extremely large, complex, and rapidly generated datasets that cannot be effectively processed using traditional data management tools and techniques. It involves advanced storage systems, distributed computing frameworks, and sophisticated analytical methods to capture, manage, and extract meaningful insights from massive volumes of structured, semi-structured, and unstructured data. Rather than being defined solely by size, Big Data is characterized by its complexity and the need for scalable technologies to analyze it efficiently (Khan et al., 2021).

One of the central frameworks used to explain the concept of Big Data is the “5 V’s”: volume, velocity, variety, veracity, and value. Volume refers to the enormous quantity of data produced from digital sources; velocity describes the speed at which data is generated and processed; variety highlights the different forms of data; veracity concerns the reliability and quality of data; and value emphasizes the ability to transform raw data into useful knowledge. These dimensions collectively distinguish Big Data systems from conventional database systems (Agarwal & Dhar, 2020).

Technological infrastructure is fundamental to the implementation of Big Data systems. Distributed computing technologies such as Hadoop and Spark allow parallel processing across multiple nodes, enabling efficient management of large datasets. NoSQL databases provide flexible data models suited for unstructured and semi-structured data, while cloud computing platforms offer scalable storage and computational resources. These technologies have made it possible for organizations to process petabyte-scale data in real time (Hashem et al., 2021).

Big Data is strongly connected with advanced analytics, particularly machine learning and artificial intelligence. Through predictive modeling, data mining, and statistical analysis, organizations can identify patterns, forecast trends, and support strategic decision-making. In sectors such as healthcare, finance, manufacturing, and agriculture, Big Data analytics enhances efficiency, reduces risks, and improves service delivery (Ristevski& Chen, 2020).

Despite its advantages, Big Data presents challenges related to privacy, security, governance, and data quality. The large-scale collection and processing of personal and organizational data raise ethical and regulatory concerns. In addition, inaccurate or biased data can negatively affect analytical outcomes. Therefore, effective governance structures and robust analytical methods are essential to ensure responsible and reliable Big Data implementation (Sivarajah et al., 2020).

Concept of Financial Management

Financial management refers to the planning, organizing, directing, and controlling of financial activities taken by an organization to successfully and efficiently accomplish its goals. To optimize shareholders' wealth, it entails choices about financing, investments, dividend payments, and overall financial performance. According to Eugene, Brigham and Joel (2022), financial management focuses on making decisions that increase the value of the firm while managing risk and ensuring liquidity. This means that managers must carefully evaluate how funds are raised and utilized to maintain a balance between profitability and financial stability.

Furthermore, James, Van Horne and John. (2018) explain that financial management involves acquiring funds at the lowest feasible cost and allocating them to projects with the highest returns while maintaining acceptable risk levels. This emphasizes how crucial working capital management, capital structure choices, and capital budgeting are to the expansion and sustainability of a business. Furthermore, in contemporary firms, financial management is strategically important. According to Aswath Damodaran (2021), financial management is value maximization, this necessitates that managers take risk, timing, and cash flows into account while making decisions. As a result, in a dynamic corporate environment, good financial management not only guarantees profitability but also fosters long-term survival, competitiveness, and stakeholder confidence. Financial management is the process of promoting accountability and financial discipline. It involves preparing budgets, monitoring expenses, and evaluating financial performance through regular reporting. Proper financial control systems help prevent waste, mismanagement, and fraud. By maintaining accurate records and conducting periodic reviews, organizations can ensure transparency and build confidence among stakeholders.

Financial management is the process of organizational growth and adaptability. It helps companies to efficiently adapt to changes in the business environment, plan for growth, and manage economic uncertainty. Organizations can retain stability during difficult times and take advantage of new opportunities by carefully organizing their finances and making wise decisions. In the end, long-term success and sustainable development are based on prudent financial management.

Furthermore, financial management can also be defined as promotion of organizational growth and strategic planning. It aids companies in projecting future financial requirements, anticipating unforeseen events, and creating backup plans. Businesses can withstand economic ups and downs by managing their cash flow well and making wise investment choices. In the end, effective financial management offers a solid

basis for long-term and short-term goal achievement, enhanced operational effectiveness, and sustainable development.

Beyond value maximization, financial management also focuses on maintaining financial discipline and accountability within an organization. It ensures proper budgeting, monitoring of expenditures, and evaluation of financial performance through tools such as financial statements and ratio analysis. By regularly assessing financial reports, managers can identify strengths, weaknesses, and potential risks, enabling them to make informed corrective decisions. This continuous evaluation promotes transparency and enhances trust among investors, creditors, employees, and other stakeholders.

Concept of Operation cost

Operation cost refers to the total recurring expenses incurred by an organization in maintaining its day-to-day business activities. These costs are necessary for the continuous production of goods or delivery of services and exclude capital expenditures related to long-term investments. Operating costs directly affect profitability and are typically reported in the income statement as operating expenses. Effective control of operating costs is essential for improving organizational efficiency and sustaining competitive advantage (Anderson, Banker, & Janakiraman, 2020).

Operation costs are commonly classified into fixed and variable components. Fixed operating costs remain constant regardless of output levels, such as rent, insurance, and permanent staff salaries. Variable operating costs fluctuate with production or service volume, including raw materials, utilities, and distribution expenses. Understanding cost behavior enables firms to conduct cost-volume-profit analysis and improve financial planning. Empirical research highlights that proper classification and monitoring of operating costs significantly enhance managerial decision-making and performance evaluation (Banker, Byzalov, & Chen, 2021).

In both manufacturing and service industries, operation costs form a major portion of total expenditures. Manufacturing firms incur costs related to materials, labor, energy, maintenance, and factory overhead, while service organizations face personnel, technology, and administrative expenses. Strategic cost management practices such as process optimization and efficiency improvement are widely adopted to reduce unnecessary operational spending. Studies show that organizations that actively manage operational expenditures achieve higher productivity and improved financial outcomes (Lee, 2022).

Operation cost also serves as an important performance indicator in financial analysis. Ratios such as operating expense ratio (OER) and operating margin are used to assess how efficiently a firm converts revenue into profit after covering operational expenses. High operating costs relative to revenue may signal inefficiencies, whereas controlled operating expenses often reflect strong cost management systems. Research demonstrates that firms with effective operating cost control tend to exhibit stronger long-term financial stability (Calleja, Steliaros, & Thomas, 2020).

Roles of Big Data in Financial Management by Business Entrepreneurs

Big data has become a vital tool in financial management for business entrepreneurs, enabling more informed and strategic decision-making. By analyzing large volumes of structured and unstructured data, entrepreneurs can identify patterns, trends, and correlations that were previously difficult to detect. Big data allows real-time insights, helping businesses respond quickly to market changes and customer needs (Mhlanga, 2024).

Another important role of big data is improving financial planning and budgeting. Entrepreneurs can use predictive analytics to forecast revenues, expenses, and cash flows with greater precision. According to Darwish et al. (2025), big data helps in analyzing customer behavior, which enables businesses to tailor their financial strategies to maximize profitability and efficiency. As a result, organizations can optimize budgeting processes and enhance overall financial performance.

Big data also plays a critical role in risk management and fraud detection. Through advanced analytics, entrepreneurs can identify potential financial risks, detect anomalies, and prevent fraudulent activities before they escalate. Real-time monitoring systems powered by big data improve internal controls and ensure compliance with financial regulations (Xiong, 2025). This strengthens the reliability of financial operations and protects business assets, which is essential for sustainable growth in competitive markets.

Furthermore, big data enhances overall business performance and competitive advantage. Entrepreneurs who effectively leverage data analytics can improve operational efficiency, reduce costs, and develop innovative financial products and services. It also supports better customer segmentation and personalized financial offerings, leading to increased customer satisfaction and revenue growth (Kanyhin, 2024).

Big Data has significantly transformed financial management by enabling organizations to analyze massive volumes of structured and unstructured financial information in real time. Advancements in analytics, artificial intelligence, and machine learning have strengthened how financial managers plan, control, and make strategic decisions in dynamic economic environments.

- **Enhanced Financial Decision-Making and Planning**

Big Data analytics enables organizations and financial institutions to support more accurate, data-driven decisions across budgeting, financial planning, investment strategy, and performance evaluation. Traditional financial decision-making often relied on limited historical data and subjective judgment. With Big Data, firms can integrate large structured and unstructured datasets (transaction history, market data, customer behavior, etc.) and apply analytics/machine learning to forecast outcomes, weigh alternatives, and optimize plans in real time. This increases precision in resource allocation, budgeting, and forecast modeling. Xiong (2025) demonstrates that big data significantly strengthens real-time internal control monitoring capabilities, improves the accuracy of financial budgeting and forecasting, and enhances the quality of financial reporting in corporate financial processes.

- **Risks Management (Credit, Market and Operational)**

Big Data helps institutions identify, assess, and mitigate financial risks more effectively. Risk management in finance involves anticipating credit defaults, market volatility, fraud, operational losses, and systemic shocks. Big Data analytics (including predictive modeling and machine learning) can process complex data from multiple sources (e.g., credit histories, transaction behavior, economic indicators) to detect early warning signs, assess credit risk, and adapt to evolving risk environments more dynamically than traditional methods. Especially in financial risk management, analytics enhances predictive accuracy and enables real-time monitoring. According to Theodorakopoulos et al. (2025), Big Data analytics has transformed financial risk management through predictive modeling, real-time risk assessment, and enhanced responsiveness to threats like fraud and credit risk.

- **Fraud Detection and Financial Controls**

Big Data systems enable advanced fraud detection, anomaly identification, and monitoring of financial activities at scale. Financial institutions face rapidly evolving fraud strategies. Big Data analytics combined with AI and machine learning processes vast quantities of transactional and behavioral data to detect unusual patterns that might indicate fraud (e.g., unusual spending, identity anomalies) far faster and with higher accuracy than manual or legacy systems.

- **Predictive Analysis and Forecasting**

Big Data supports forecasting future financial trends and behavior patterns. Predictive analytics uses historical and current data to estimate future outcomes, such as customer creditworthiness, cash flow trends, investment returns, and market movements. This improves strategic response capability and aids in proactive financial governance rather than reactive adjustments.

- **Improved Financial Reporting Quality**

Big Data accelerates reporting processes and enhances the reliability of financial reports. Financial reporting requires timely and accurate compilation of large datasets. Big Data technologies enable near-real-time integration, verification, and visualization of financial data, which improves the timeliness and quality of reporting and supports compliance with accounting standards. Xiong (2025) affirmed that Big Data finance improves the quality of financial reporting and internal controls within firms.

- **Operational Efficiency and Cost Optimization**

Through automation and data integration, Big Data increases the efficiency of financial management operations. Automating repetitive tasks (data retrieval, consolidation, and routine analysis) reduces manual labor, minimizes human errors, and frees financial professionals to focus on high-value analytical tasks. This improves turnaround times for financial reviews and lowers operational expenses. Ahmed & Marshal (2025) highlight that data-driven activities improve operational efficiency and streamline workflows.

The potency of big data in streamlining operations

As businesses from various sectors embrace data-driven management approaches, the power of big data to streamline operations is becoming more and more apparent. Fundamentally, big data refers to incredibly huge, varied, and quickly created databases that may be computationally examined to identify trends, connections, and patterns. This capacity allows businesses to transition from reactive to predictive and prescriptive decision-making in operational environments. Big data analytics, for instance, helps with demand forecasting, inventory optimization, and real-time production process monitoring in manufacturing and supply chain management.

Businesses may minimize waste, increase overall efficiency, and decrease downtime by integrating data from sensors, corporate systems, and consumer transactions. Recent studies emphasize that advanced analytics, artificial intelligence (AI), and machine learning algorithms embedded within big data systems significantly enhance operational agility and resilience (Queiroz & Telles, 2018). Managers are now able to make evidence-based decisions that match strategic goals with operational success rather than depending solely on intuition. This change enhances customer happiness and service performance while lowering operating expenses.

Big data improves coordination and transparency in intricate operational networks in addition to increasing efficiency. Numerous parties, systems, and regulatory frameworks are involved in operational operations in industries like healthcare, finance, logistics, and energy. Big data platforms create unified dashboards that improve visibility throughout the value chain by combining structured and unstructured data from several sources, such as social media comments and Internet of Things devices. For the purpose of locating bottlenecks, reducing risks, and guaranteeing compliance, such visibility is essential. For instance, research indicates that data-driven supply chain integration improves responsiveness and collaboration among partners, especially during disruptions like the COVID-19 pandemic (Dubey, Gunasekaran, Childe, Bryde, & Giannakis 2021). Big data analytics also makes it possible to track performance in real time, which makes continuous improvement techniques like Six Sigma and lean management possible. Organizations can improve procedures, more efficiently deploy resources, and predict operational breakdowns before they worsen by identifying inefficiencies at granular levels.

Big data turns operations from static systems into dynamic, adaptive ecosystems that can react quickly to changes in the environment, as demonstrated by this proactive capability. Big data's ability to streamline processes is not always automatic, though; organizational preparedness, data governance, and technology infrastructure all play a significant role. Investing in analytics technologies by itself does not ensure better performance. Studies highlight that firms must cultivate data-driven cultures, ensure high-quality data management, and develop analytical competencies among employees to fully harness operational benefits (Akter, Wamba, Gunasekaran, Dubey, & Childe, 2019).

To preserve confidence and adhere to regulations, issues including data protection, cybersecurity threats, and ethical considerations also need close supervision.

Additionally, it can be difficult and resource-intensive to integrate big data into legacy operating systems. Notwithstanding these difficulties, the overwhelming body of research from 2018 onwards continuously shows that businesses that strategically apply big data analytics gain a competitive edge, increased operational efficiency, and enhanced capacity for innovation. Big data continues to be a key tool for streamlining operations, increasing productivity, and creating robust operational frameworks in a corporate environment that is becoming more and more unstable as digital transformation picks up speed on a global scale.

The potency of big data in reducing cost

Big data analytics (BDA) has become a strategic organizational capability that supports cost reduction by improving efficiency, enhancing forecasting accuracy, and minimizing operational risks. Recent empirical studies confirm that firms leveraging big data achieve measurable cost advantages across multiple functional areas.

- **Operational Efficiency and Process Optimization**

Big data reduces costs by enabling organizations to analyze real-time operational data, identify inefficiencies, and streamline processes. Through analytics-driven insights, firms can eliminate redundant activities, optimize resource allocation, and improve productivity. Research by Wamba et al. (2020) demonstrates that big data analytics capability significantly improves firm p*erformance by strengthening operational capabilities. The study shows that organizations with strong analytics infrastructure achieve greater process efficiency, which directly reduces operational and administrative costs.

- **Supply Chain Cost Reduction**

Big data analytics enhances supply chain visibility and forecasting accuracy, leading to reduced inventory holding costs and improved logistics coordination. Accurate demand prediction minimizes overstocking and stockouts, both of which increase operational expenses. Dubey et al. (2020) found that big data analytics capability positively affects supply chain resilience and organizational performance. Their findings indicate that firms using advanced analytics experience fewer disruptions and lower inventory-related costs.

- **Improved Decision-Making and Financial Cost Control**

Data-driven decision-making reduces costly managerial errors by replacing intuition with predictive modeling and evidence-based insights. Better financial planning and forecasting lower the risks of budget overruns and misallocated investments. Mikalef et al. (2020) found that big data analytics capability enhances competitive performance through improved operational and dynamic capabilities. Their results suggest that improved decision quality leads to better financial control and reduced inefficiencies.

- **Risk Management and Fraud Prevention**

Big data analytics tools can detect anomalies in transactional and operational data, helping organizations identify fraud and risk exposure early. Early detection prevents

financial losses, legal penalties, and reputational damage. Bag et al. (2021) show that big data analytics significantly improves risk management capabilities in organizations. Their study concludes that firms leveraging analytics reduce uncertainty-related losses and improve overall cost efficiency.

- **Organizational Agility and Cost Flexibility**

Big data contributes to organizational agility by enabling faster responses to market changes. bvAgile firms can scale operations up or down efficiently, avoiding unnecessary fixed costs during demand fluctuations. Queiroz and Wamba (2020) found that big data analytics adoption improves supply chain integration and performance. Their findings suggest that analytics-enabled integration increases operational flexibility and reduces structural inefficiencies that lead to higher costs.

METHODOLOGY

Descriptive survey design was adopted for this study. The study was carried out in Uyo Metropolis and the targeted population for the study comprised of all the business entrepreneurs in Uyo Metropolis. A simple random sampling technique was used in selecting 160 business entrepreneurs from Uyo Metropolis. This gave a total sample size of 160 respondents. The instrument used for data collection was a structured questionnaire titled "Big Data in Financial Management Questionnaire" (BDFMQ). Face and content validation of the instrument was carried out by an expert in test, measurement and evaluation in order to ensure that the instrument has the accuracy, appropriateness and completeness for the study under consideration. The reliability coefficient obtained was 0.85 and this was high enough to justify the use of the instrument. The researcher subjected the data generated for this study to appropriate statistical technique such as descriptive statistics to answer research questions.

RESULTS AND DISCUSSIONS

Research Questions 1: The research question sought to examine the roles of big data in financial management by business entrepreneurs in Uyo metropolis. To answer the research question, percentage analysis was performed on the data, (see table 1).

Table 1:
Percentage analysis of the roles of big data in financial management by business entrepreneurs in Uyo metropolis

Roles	Frequency	Percentage
Enhanced Financial Decision-Making and Planning	36	24.00**
Risks Management (Credit, Market and Operational)	33	22.00
Fraud Detection and Financial Controls	31	20.67
Predictive Analysis and Forecasting	26	17.33*
Improved Financial Reporting Quality	24	16.00
Operational Efficiency and Cost Optimization	32	11.00
TOTAL	**150**	**100%**

** **The highest percentage frequency**
* **The least percentage frequency**
SOURCE: Field survey

The above Table 1 presents the percentage analysis of the roles of big data in financial management by business entrepreneurs in Uyo metropolis. From the result of the data analysis, it was observed that the highest percentage (24.00%) was recorded against "Enhanced Financial Decision-Making and Planning", while the least percentage (16.00%) was recorded against "Predictive Analysis and Forecasting". This finding agrees with the opinion of Mhlanga (2024), who highlights that big data has become a vital tool in financial management for business entrepreneurs, enabling more informed and strategic decision-making. By analyzing large volumes of structured and unstructured data, entrepreneurs can identify patterns, trends, and correlations that were previously difficult to detect.

Research Questions 2: The research question sought to examine the potency of big data in reducing cost. To answer the research question, percentage analysis was performed on the data, (see table 2).

Table 2:
Percentage analysis of the potency of big data in reducing cost

Potency	Frequency	Percentage
Operational Efficiency and Process Optimization	24	16.00**
Supply Chain Cost Reduction	19	12.67
Improved Decision-Making and Financial Cost Control	22	14.67
Risk Management and Fraud Prevention	22	14.67
Organizational Agility and Cost Flexibility	21	14.00*
TOTAL	**150**	**100%**

** **The highest percentage frequency**
* **The least percentage frequency**
SOURCE: Field survey

The above Table 2 presents the percentage analysis of the potency of big data in reducing cost. From the result of the data analysis, it was observed that the highest percentage (16.00%) was recorded against "Operational Efficiency and Process Optimization", while the least percentage (8.00%) was recorded against "Organizational Agility and Cost Flexibility". This finding agrees with the opinion of Queiroz & Telles (2018) who state that businesses may minimize waste, increase overall efficiency, and decrease downtime by integrating data from sensors, corporate systems, and consumer transactions.

Research Questions 3: The research question sought to examine the potency of big data in streamlining operations. To answer the research question, percentage analysis was performed on the data, (see table 3).

Table 3:
Percentage analysis of the potency of big data in streamlining operations

Potency	Frequency	Percentage
Minimization of waste in businesses	24	16.00**
Increase in overall efficiency	19	12.67
Decrease in downtime by integrating data	22	14.67
Possibility of making evidence-based decisions	22	14.67
Improved coordination and transparency	21	14.00
Improved responsiveness and collaboration	22	12.00*
Operations turned from static systems into dynamic	12	14.00
TOTAL	**150**	**100%**

** **The highest percentage frequency**
* **The least percentage frequency**
SOURCE: Field survey

The above Table 3 presents the percentage analysis of the potency of big data in streamlining operations. From the result of the data analysis, it was observed that the highest percentage (16.00%) was recorded against "Minimization of waste in businesses", while the least percentage (8.00%) was recorded against "Organizational Agility and Cost Flexibility". This finding agrees with the opinion of Wamba et al. (2020) who states that big data analytics (BDA) has become a strategic organizational capability that supports cost reduction by improving efficiency, enhancing forecasting accuracy, and minimizing operational risks.

Conclusion

This study has demonstrated that Big Data plays a transformative role in modern financial management by enhancing decision-making, improving operational efficiency, and significantly reducing operational costs. Unlike traditional financial systems that rely mainly on historical and structured data, Big Data integrates diverse and real-time information to support predictive analysis, strategic planning, and proactive financial control. Through advanced analytics, machine learning, and automation, financial managers are able to improve budgeting accuracy, strengthen risk management systems, detect fraud more effectively, and enhance the quality of financial reporting. The findings further reveal that Big Data contributes substantially to streamlining organizational operations. By automating routine financial processes, optimizing resource allocation, and improving supply chain coordination, organizations can eliminate inefficiencies and reduce waste. These improvements directly translate into cost savings, improved productivity, and stronger financial discipline. However, the effectiveness of Big Data depends on proper technological infrastructure, sound data governance frameworks, and the development of analytical skills within organizations.

Recommendation

1. Organizations should invest in modern data storage systems, cloud computing platforms, and advanced analytics tools to effectively manage large and complex financial datasets.

2. Financial managers and staff should receive training in data analytics, artificial intelligence, and financial modeling to maximize the benefits of Big Data technologies.

3. Organizations should strategically integrate Big Data solutions with legacy accounting and financial management systems to ensure seamless data flow and operational continuity.

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