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ROLE OF BIG DATA ANALYTICS IN STRATEGIC DECISION MAKING AND FINANCIAL PERFORMANCE OF MODERN ORGANIZATIONS

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ABSTRACT

This study seeks to find out how modern businesses may use Big Data Analytics (BDA) to boost their financial results and strategic decision-making. With the advent of digital transformation, companies are realizing the importance of data-driven insights in their pursuit of sustainability, competitiveness, and efficiency gains. Using a structured questionnaire to collect primary data from a sample of one hundred participants, the study employed a descriptive and analytical research methodology. BDA is a vital tool for improving strategic decision-making through accurate forecasting, risk assessment, and smart planning, as most respondents understood. Moreover, the findings also revealed that BDA had a positive impact on financial performance in terms of increasing profitability, cost effectiveness, and financial management practices. Nevertheless, the research also made important discoveries on the major challenges of implementing BDA, such as excessive cost, technicality, and unskilled personnel. Comprehensively, the paper found that BDA is an important tool to organizational success, which facilitates both strategic and financial goals using a competitive business environment.

Keywords: *Big Data Analytics, Strategic Decision-Making, Financial Performance, Data-Driven Decisions, Organizational Performance, Business Intelligence*

1. INTRODUCTION

The modern-day business environment can be described as being marked by a high level of technological development, rising globalization and the unparalleled rate of data generation. The modern world has become extremely dynamic and competitive with organizations requiring to make decisions that are correct and timely in order to survive and prosper. Here, BDA has become a revolving technology that can be used in organizations to gather, process, and analyze large amounts of data of various sources.

With this ability, firms are able to draw meaningful insights, discover patterns, and endorse the initiatives of strategy with a greater level of accuracy and dependability.

Managerial experience, intuition and small datasets used to be considered as the strategic decision-making basis and in many cases, led to suboptimal choices. Nevertheless, the development of big data technologies has led to the fact that the process of decision making is now more evidence-based, systematic and data-driven. BDA supports the process of predictive and prescriptive analytics that can help organizations predict the future trends, assess risks, and develop high-quality strategies. Consequently, organizations are capable of reacting positively to a shift in the market, improve their efficiency, and attain long-term viability.

Besides better decision making processes, BDA is important in improving financial performance of organizations. Through the power of data, companies are able to make cost optimization, better revenue streams and enhance financial planning and control measures. The analytics-based strategies allow the organizations to learn about the customer behavior, optimize the supply chains, and find the lucrative opportunities, thus making the organizations more profitable and competitive. The incorporation of financial analytics and strategic planning also helps organizations to make their goals fit into the quantifiable results.

Even though the BDA have multiple advantages, its adoption is not without certain difficulties. The problem of data privacy, security issues, expensive implementation cost, and the requirement of qualified experts may impede its successful implementation. Besides, to maximize the full potential of BDA, organizations need to create effective data governance systems and invest in technology infrastructure. Thus, it will be necessary to discuss the impact of BDA on the strategic decision-making process and financial results as well as discuss the issues related to its implementation in contemporary organizations.

2. LITERATURE REVIEW

Adewale et al. (2023) researched the new role of financial analysis based on big data in better strategic and organizational decision making. The researchers discovered that the application of BDA in financial systems increased the accuracy and reliability of financial forecasting significantly. It was noted that companies that embraced data-driven financial models were in a better position to detect market trends, evaluate the financial risk and take proactive strategic choices. Moreover, the authors noted that BDA

has been useful in enhancing the transparency and informed financial planning hence improving the overall organizational performance.

Ali et al. (2020) reviewed how BDA influences sustainability and financial performance of ASEAN banking organizations. The results showed that operational efficiency, better risk management practice, and sustainable business growth were being supported through the application of advanced analytics tools. This research indicated that financial results are optimized in organizations that use BDA because of the quality of decisions and maximization of resources. Also, the study emphasized the need to align analytics functionality with organizational policies in generating financial sustainability in the long term.

Ferraris et al. (2019) investigated the connection between BDA potential, knowledge management, and firm performance. The research showed that those organizations that had a robust analytics capability were more productive in terms of capturing, storing and using the knowledge in strategy. It has been discovered that BDA helped in improving communication and knowledge sharing among the departments, and this improved decision-making processes. The authors came to the conclusion that synergy of BDA and knowledge management systems was very crucial in enhancing innovation, efficiency, and overall organizational performance.

Popovic et al. (2018) examined how BDA can affect the performance of high-value business and strategic decision-making. It was discovered during the study that the quality of managerial decisions and speed increased a great deal when the systems of business intelligence became the analytics-based ones. Organizations that applied BDA could convert raw data into meaningful insights that helped them come up with better strategies and perform better financially. Another key finding of the research was that the use of data-based decision-making contributed to a competitive advantage as organizations could react promptly to the alterations in the market environment and demands of customers.

3. RESEARCH METHODOLOGY

The current section will outline the methodology framework, which will be applied to examine the role of BDA in strategic decisions and financial performance of modern organizations. Towards achieving valid and reliable findings of the study, the study was designed in a manner that ensured the systematic collection of data, data analysis and interpretation. The primary and the secondary sources of data provided a complete picture on the research problem. Research design was geared towards capturing the

perception of the respondents to the appropriateness of BDA in enhancing decision making processes and financial performance.

3.1 Research Design

The research design was descriptive and analytical research design in the sense that it aimed at explaining the current state of affairs with regards to the use of BDA in organizations and explore its influence on strategic decision-making and financial performance. This design was considered appropriate in the establishment of patterns, relationship and trends among the variables under investigation.

3.2 Sample Size and Population

The study population was comprised of employees, managers, and professionals in contemporary organizations in various fields of service including finance, IT, manufacturing, and services. The study sample was 100 respondents. The respondents were selected through convenience sampling method taking into account the accessibility and their desire to participate.

3.3 Data Collection

The study was grounded on primary and secondary data. The primary data collection was done through personal interviews with the respondents using structured questionnaire and secondary data was gathered through journals, research articles, books, and internet databases that were related to BDA and organizational performance.

3.4 Data Collection Tools and Instruments

The use of a structured questionnaire was used to collect data. The questionnaire was formulated using five-point Likert scale of SA to SD. Questions related to the perception of the BDA, its implications on decision-making, financial performance, and implementation problems were associated with it.

3.5 Data Analysis

Data collected was studied through a descriptive statistical analysis like frequency distribution, percent analysis and tabular representation. These techniques were useful in simplifying, interpreting and explaining the data easily and making significant conclusions on the value of BDA in contemporary organizations.

4. RESULTS AND DISCUSSION

The analysis and interpretation of the received information following the communication with the respondents regarding the role of BDA in strategic decision-making and financial performance of the modern organization is present in this part of the paper. The results are logically arranged and represented in the forms of tables and the corresponding graphical representations to provide a clear picture and the ability to understand it. Both of the tables focus on certain factors, including the awareness level, its effect on decision-making, the effect on financial performance, and implementation difficulties. The analysis does offer significant knowledge on the way organizations view and apply the concept of BDA to the realization of both strategic and financial goals.

Table 1 shows how the respondents were distributed according to their awareness of the BDA. The responses are classified into five levels which are highly aware, aware, neutral, unaware and highly unaware with the corresponding frequency and percentage. This distribution can also be visualized in Figure 1 that shows the distribution of respondents according to the awareness levels. The table and figure provide a summary of the level of familiarity with the BDA among the sampled respondents.

Table 1: Awareness of BDA among Respondents

Awareness Level	**F**	**%**
Highly Aware	35	35%
Aware	30	30%
Neutral	15	15%
Unaware	12	12%
Highly Unaware	8	8%
Total	**100**	**100%**

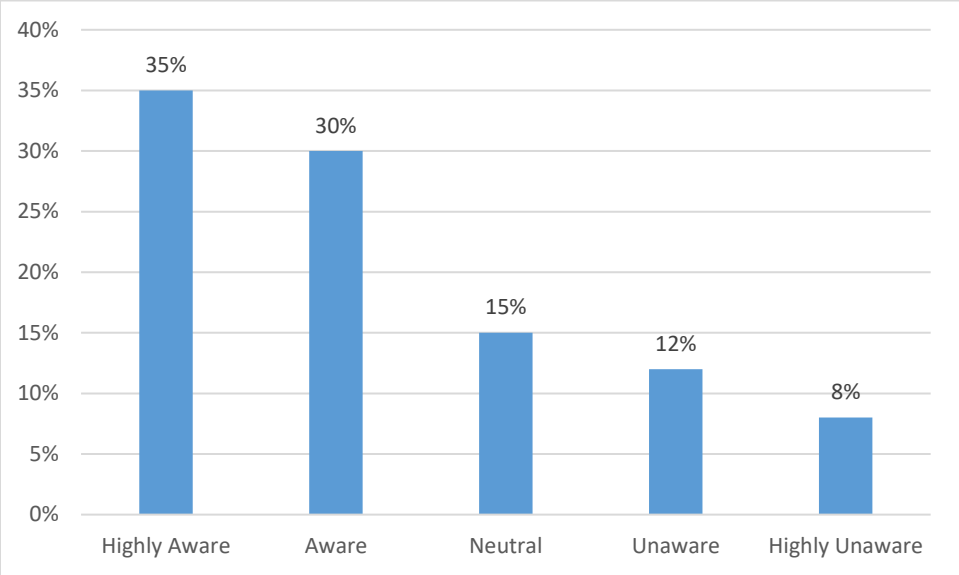

Figure 1: Visual Representation of Awareness of BDA among Respondents

The statistics indicate that most of the respondents were highly aware of the BDA. Precisely, 35 percent of the respondents were well aware, and 30 percent were aware meaning that 65 percent of the total respondents were well informed about the concept. Also, 15 percent of respondents were neutral, which implies that they had partial or moderate awareness. Conversely, a smaller proportion of the sample (12 percent) were unaware and an even smaller proportion highly unaware (8 percent). These results show that BDA is quite familiar among the respondents, yet a significant part of them does not have adequate awareness.

Table 2 presents a distribution of the respondents based on their perception on the impact of the BDA on strategic decision-making. The responses have been explained as falling into five levels with SA, A, N, D and SD as the frequency and percentage of responses. Figure 2 provides a graphical representation of the responses and it shows the overall perception of the respondents regarding the role that BDA can play in influencing or not influencing the strategic decision-making in organizations.

Table 2: Impact of BDA on Strategic Decision Making

Response Level	**F**	**%**
S A	38	38%

A	32	32%
N	12	12%
D	10	10%
S D	8	8%
Total	**100**	**100%**

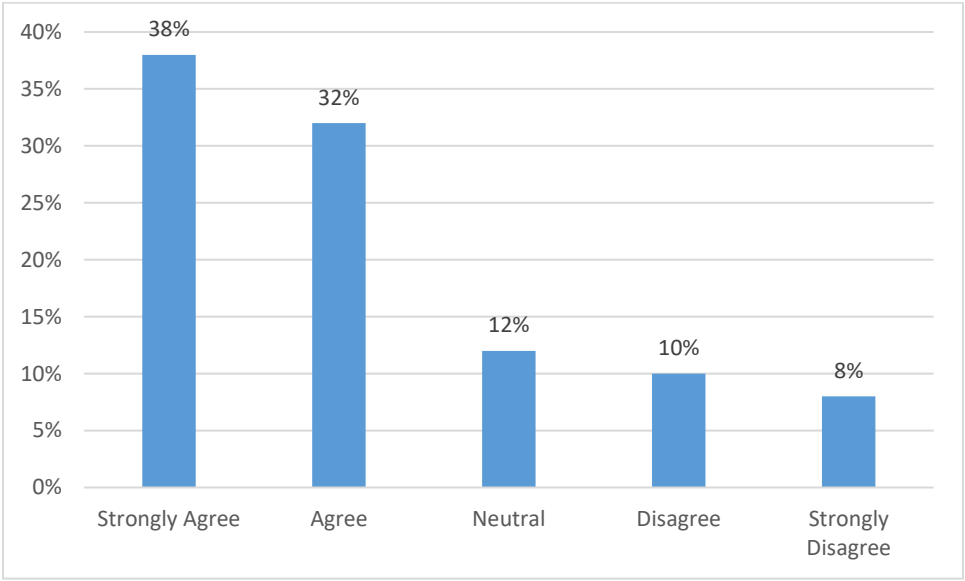

Figure 2: Visual Representation of Impact of BDA on Strategic Decision Making

The statistics demonstrate that the percentage of the participants who have noticed the positive impact of BDA on strategic decision-making was rather high. More specifically, it was 38 percent and 32 % strong affirmative and affirmative respectively, a total of 70 % of the respondents responding in the affirmative. Additionally, 12% of the respondents were N, a fact that depicts moderate or indistinct opinions. When contrasted to this, 10 percent stated that they agreed and 8 percent stated SA, which is 18 percent of the total respondents. The findings of this investigation confirm that most of the respondents were conversant with the role of BDA to enhance effectiveness, accuracy and quality of strategic-level decisions in modern organizations.

Table 3 presents the survey of the respondents based on their opinions on the effect of the BDA on the financial performance. The responses are categorized into five levels including SA, A, N, D and SD with its frequency and percentage attached to them. Figure 3 has graphically captured these responses by providing the overall perception of the respondents on the role of the BDA in contributing to the financial performance of organizations.

Table 3: Influence of BDA on Financial Performance

Response Level	**F**	**%**
S A	40	40%
A	30	30%
N	10	10%
D	12	12%
S D	8	8%
Total	**100**	**100%**

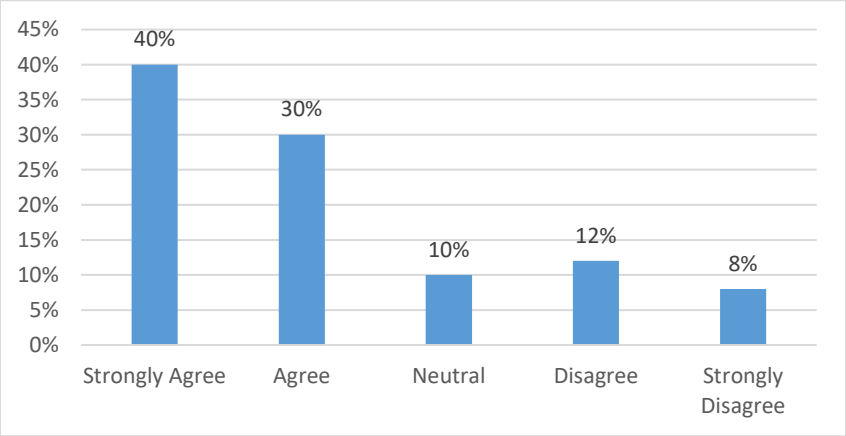

Figure 3: Visual Representation of Influence of BDA on Financial Performance

These statistics show that the majority of respondents believed that the BDA influenced the financial performance in a positive way. Especially, 40 % SA and 30 % A, this implies that 70 % of the respondents

were favorably perceived. In addition, 10 % of the respondents were N, meaning that it was uncertain or moderately so. On the other hand, 12% varied and 8% varied strongly and comprised up to 20% who failed to experience the positive influence. Such findings suggest that most respondents acknowledged the fact that the application of BDA can help the existing organizations to become more successful, in regard to profitability, cost-effectiveness, and financial planning.

Table 4 has indicated the distribution of the respondents based on their perception of the level of challenge in the implementation of the BDA. The responses are placed in four scales including high, moderate, low, and very low with their frequency and percentage. These answers have been graphically represented with the help of Figure 4 that demonstrates the way in which the respondents are located regarding the degree of challenges associated with the process of adoption and implementation of BDA in organizations.

Table 4: Challenges in Implementing BDA

Challenge Level	**F**	**%**
High	30	30%
Moderate	35	35%
Low	20	20%
Very Low	15	15%
Total	**100**	**100%**

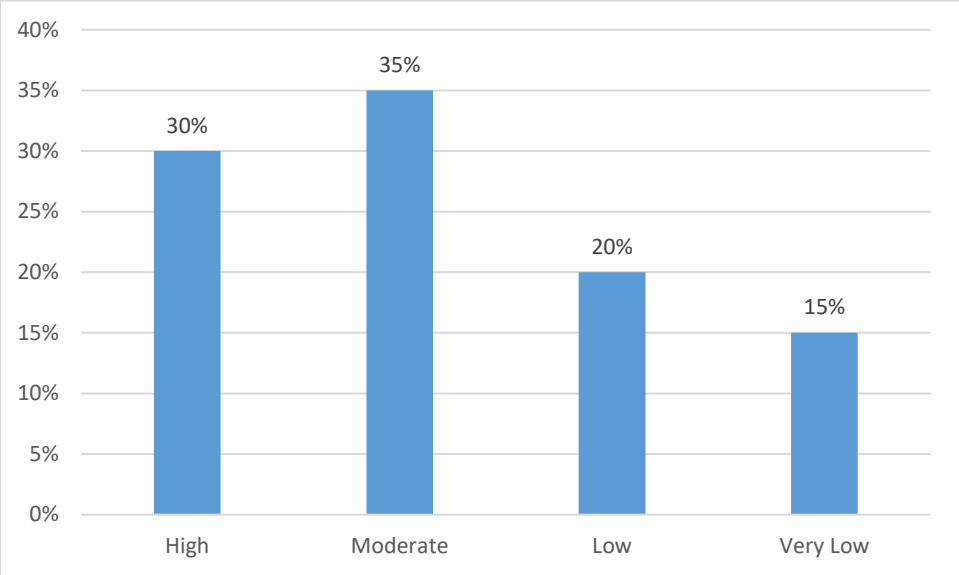

Figure 4: Visual Representation of Challenges in Implementing BDA

Its statistics show that a significant percentage of respondents had difficulties with implementing the BDA. In particular, 35 and 30 percent of the respondents indicated moderate and high level of challenges respectively, which constitute 65 percent of the total respondents. Also, 20 percent of the respondents viewed the challenges as low and 15 percent viewed them as very low. These results indicate that, although BDA is well known in its positive aspect, the organizations are still having lots of obstacles to it, including technical complexity, high prices, and shortage of experienced specialists during the process.

5. CONCLUSION

The conclusion made was that the BDA plays a great role in enhancing the strategic decision-making process and finance of the modern organizations. It was found out that a significant proportion of the respondents are very aware about BDA and they are cognizant of the positive impact of this approach on quality, accuracy, and efficiency of strategic decisions. In addition, it was found that data-driven solution implementation assisted in improving financial performance in terms of profitability, cost, and financial planning. However, there are additional issues in the implementation of the BDA that also occurred in the study, such as the difficulty of the technology, high cost, and lack of skilled professionals. Nevertheless, despite these challenges, overall conclusions were that the organizations incorporating BDA are better placed to attain competitive edge and long term sustainability in the increasingly data intensive business environment.

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