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Business Intelligence and Decision-Making in Micro Small and Medium Enterprises in Africa

Anoke Amechi Fabian[1*], Eze Solomon Uchechukwu[1], Essell Obiageli Blessing[1]

[1]Department of Business Administration, Faculty of Management Sciences, Nnamdi Azikiwe University, Awka Nigeria

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***Corresponding author:** Anoke Amechi Fabian
Department of Business Administration, Faculty of Management Sciences, Nnamdi Azikiwe University, Awka Nigeria

Abstract **Original Research Article**

A strong business intelligence strategy can deliver accurate data and reporting capabilities faster to business operators; help them make better quicker business decisions. Holding this statement constant, the researchers investigated business intelligence and decision making in MSMEs in Africa. The study is qualitatively done with six participants who responded to an unstructured questionnaire employed to gather the needed relevant data. The collected data were meticulously transcribed and analyzed. After completion, the numerous data entry forms underwent internal validation to guarantee that the replies were accurately categorized before being harmonized and divided into two main categories-competitive advantage and operational efficiency. The Study found that business intelligence is pivotal for timely decision-making in firms especially in the MSMEs sector of the Nigeria economy as it is a strategy used by owner-managers in the organization to achieve operational efficiency and competitive advantage in a tense business environment like Nigeria. It is evident, therefore, that Africa especially Nigeria is not doing badly in the MSMEs sector of the economy and to sustain this stride, governments at all levels must factor in MSMEs and technology into their policy formulation and implications. It is only when that is done that Africa in general and Nigeria, in particular, can boost of not only registering its name in the global economic map but will have a viable economic base that will continue to attract foreign direct investment.

Keywords: Business intelligence, Decision Making, MSMEs, and Africa.

INTRODUCTION

After Asia, Africa is arguably the second-largest continent in the world. Roughly one-fifth of the Earth's total land mass is covered by it. It is the continent with the second-highest population with over 1.4 billion people, which has the potential to grow geometrically both in human capital development and population according to the United Nations (2023). Africa before now has been labeled and regarded as the weakest and saddest of the world regions due to war, corruption, poor and bad leadership, neglect, and exclusion from the global power play. A few years back, the world economic players branded Africa as a "hopeless Continent" with little or nothing to offer on the global table. Remarkably, the Africa Progress Panel report from 2015 stated that, fifteen years later, Africa has clearly emerged as the continent of hope's spouse. In the modern era, commerce and investment are gradually replacing aid for development in Africa. It is currently offering multiple business opportunities to the rest of the world. These business openings are a result of the contribution of Micro Small and Medium Enterprises (MSMEs), which is a catalyst for economic development and sustainability in the continent. To achieve this, and for the continent especially Nigeria to continually remain relevant in the global economic map through MSMEs, the sector must embrace Business Intelligence (BI) for proper business decision-making.

To have a global perspective and maximize a company's assets in a competitive business environment in Africa particularly Nigeria, it is essential to consolidate and analyze information resources in the current environment, which is characterized by their fragmentation, volume, and complexity. The goal of the BI is to generate knowledge and information for the Executives and Operational Personnel to use in their decision-making, not just from the firm's data but also from sources outside the company. BI can be approached in many various ways depending on the firm's goals and objectives. Its goal is to support managers in their decision-making and in the analysis of their organization's performance. Given its influence on the

operation of a business, business intelligence has become inevitable. It is a constant activity within businesses rather than a one-time project.

As perceived by the global literature, Data generated by an organization's operations is gathered, stored, and analyzed using a procedural and technological infrastructure known as business intelligence (BI). To analyze corporate data and turn it into meaningful insights that guide tactical and strategic business choices, BI is a collection of methodologies and tools (Thor & Josh, 2023). This concept was defined as a method to improve business decision-making through fact-based analyses. According to Mihaelia and Rozalia (2012), managing large volumes of data from internal and external business environments is a part of business activities for all sizes of organizations. This data is related to everything from advertising to clients to internal operations to financial assets and more. The key component enabling BI success in this case is data.

In any organization, the ability to make decisions has long been recognized as one of the crucial abilities an entrepreneur or would-be entrepreneur must have to succeed in the current, fiercely competitive business environment. One of the key traits of a successful entrepreneur is their capacity for sound business decisions (Oguejiofor, 2022).

Financial success and growth are the most common metrics used to assess an organization's performance. Everyone in the organization dislikes having deficits and slow future progress. As a result, managers feel compelled to shape performance in certain business operations. This performance-based strategy establishes the standard for the top management to acknowledge the efforts, intellectual prowess, and business acumen of their managers. Managers must decide how to frame their organization daily to achieve sustained organizational performance.

Decision–making is simple and unambiguous. It is just an action of deciding. In the course of a man's daily activities, it is a recognized aspect of human life. Currently, decisions can be made haphazardly or after careful consideration and deliberation. Individuals' decisions are frequently impacted by their feelings, their logic, or a combination of the two, which has an indirect or direct impact on organizational performance.

However, regardless of the circumstance, a decision always results in an action. Planning's fundamental component is organizational decision-making, as is clear. There are many options available in an organization for carrying out a task, but it is the manager's responsibility to choose the one that will provide the intended results because he or she is responsible for any decisions made by the group or individual inside the organization.

For decision makers to make the best choice at the appropriate time and location, they need high-quality data (Farjami & Molanapour, 2015). However, organizations recognized the significant importance of data in their day-to-day operations. According to Valerio (2017), there are several ways in which this data can be sourced, including financial records, marketing campaigns, sales transactions, and customer interactions.

With the recent growth of data, many organizations seem to turn harness from BI solutions to capture and extract relevant information that can be used for data-driven decisions. The primary benefit of business intelligence (BI) is its capacity to inform business decisions through data. Business users can make better decisions more quickly with the support of a robust business intelligence (BI) strategy, which can provide accurate data and reporting capabilities more quickly. Data is an effective instrument that businesses can use to improve their decision-making and future planning. Businesses can obtain important insights into their operations, clients, and rivals by gathering and evaluating data from a variety of sources (Okonkwo, 2023). The key performance indicators, such as resource allocation, marketing campaigns, and product development, can then be made using this information. Furthermore, in the fast-paced, data-driven business environment of today, data is a crucial tool for BI and strategic planning. Better decision-making, higher performance, and greater competitiveness can result from using this KPI to help businesses understand their operations, clients, and rivals on a deeper level.

Micro, Small, and Medium Enterprises (MSMEs) are an essential part of the Nigerian economy, and effective decision-making processes are vital for their growth and success. MSMEs in Anambra State rely heavily on BI when making decisions. However, BI provides MSMEs with vital information that has been used to reduce errors in production therefore allowing the MSMEs to realize operational efficiency and productivity. Through this information, MSMEs can identify, monitor, and analyze the market trends. By understanding the market trends, MSMEs can monitor competitor activities, analyze customer preferences, and make informed decisions regarding strategic plans and marketing strategies to stay competitive.

However, despite the critical role the MSMEs play as a catalyst for economic development, the issue of BI in this sector and how it affects their business strategy has reduced some of their efficiency. Due inadequate technology needed for data collection has reduced the operational efficiency and productivity of the MSMEs. Most of the MSMEs seem to experience duplicated data information on their database. This often happens due to manual entries of data. As a result of these multiple entries, it can slow down storage and create inefficient workflows. These seem to work against the goal of the organization because they lead to wrong conclusions and

an ineffective strategy. Erroneous data can also prevent data from being filtered or used, which can result in problems like ineffective email delivery or poor targeting and segmentation. However, these organizations seem not to have perceived the need for data governance in identifying areas that require improvement and making data-driven decisions to optimize operations. As a result of this, they are perused as not being advanced in technology which greatly reduces the overall performance of the organization.

Based on the aforementioned performance indicators, it is not clear if business intelligence, which restores decision-making, affects the competitive advantage and operational efficiency of MSMEs in Anambra State; which this study is set to unveil.

Nigeria continues to be the continent's largest country and will always act as a big brother to the other African nations. Anambra state is the commercial hub of the South East geopolitical zone of Nigeria and the country's commercial nerve center, second only to Lagos. Thus, it is appropriate that Anambra state was chosen for this investigation.

Objectives of the Study

The broad objective of this study is to ascertain the effect of Business Intelligence on the decision-making of micro small and medium enterprises in Anambra state Nigeria. Specifically, the study will examine:

1. The effect of data sourcing on decision making of micro small and medium scale enterprises in Anambra State, Nigeria.
2. The effect of data analysis on the decision making of micro small and medium scale enterprises in Anambra State, Nigeria

REVIEW OF RELATED LITERATURE

Conceptual Clarifications

MSMEs and the African Economy

Following a string of recent shocks, such as the novel COVID-19 crisis, climate change, Russia's aggressive war against Ukraine, and the uncontrollably high energy crisis since the 1970s, the global economy is still recovering gradually. Africa, and especially Nigeria, is not excluded from the fight. Although there is still uncertainty in the picture, MSMEs are crucial to the realization of longer-term policy objectives like an inclusive, green, and digital transition, as economies have a long way to go before achieving robust and sustained growth. A resilient, inclusive, and sustainable recovery will require the support of African entrepreneurs and micro, small, and medium-sized enterprises (MSMEs) (Anoke, Osita, Okafor, and Nzewi, 2022). The shocks have disproportionately affected the MSMEs because they were on the front lines, and African governments are expected to have given them significant help to protect them from the immediate effects. SMEs will also need to lead the green and digital transitions because they account for 99% of businesses and roughly 60% of the value added in the business sector (Marchese, & Medus, 2023). Utilizing MSMEs' full potential to aid in significant societal, environmental, and economic transformations and to increase economic resilience calls for the creation of the ideal enabling conditions and coordinated action on several fronts including but not limited to fighting political, social, and environmental wars holistically.

Business Intelligence (BI)

Business intelligence systems combine analytical tools with operational data to deliver competitive and sophisticated information to planners and decision makers. Enhancing the effectiveness of the decision-making process and the caliber of the input is the aim. Business intelligence is used to understand the company's capabilities, the competitive markets, technological advancements, and future directions of these areas, as well as the competitor's actions and their effects.

Even though the market for most IT products is now slow, demand for business intelligence (BI) systems is nevertheless rising. This underscores the rising need and demand for BI by contemporary managers, business experts, captains of industry, and government agencies. According to Negash (2004), as computer technology and software progressed and businesses' computational and analytical needs grew more complex, capabilities increased with each new iteration. MSME operators who what to remain relevant in the stiff and tense business environment must navigate around the business evolution orchestrated by the silent tsunami (BI) pushing the frontiers of business forward.

A number of previous decision-supporting tools make sense to advance to business intelligence. The advent of data warehouses as repositories, advances in data cleansing leading to a single truth, greater power of hardware and software, and the proliferation of Internet technologies have all contributed to a richer business intelligence environment that was previously unachievable. As you can see below, BI collects data from a wide range of systems.

OLIP	Data Warehouse	Visualization
Data Mining	Business Intelligence	SMM
DBS	Knowledge Management	GIS

Note That: OLIP = on-line Information processing, CRM= Sustainability Marketing management, DBS= decision backing systems, GIS = geographic information systems

Source: Negash (2004) with slight modifications

Business Intelligence Dimensions

According to Al-Masab (2018), during the past ten years, business intelligence dimensions have become a major factor in company and organizational performance improvement.

The business intelligence dimensions are discussed below.

Data Collection:

Data sources are the initial stage of business intelligence systems. Here, all available data from primary and secondary sources—which vary in type and origin—must be gathered and integrated (Kopcekova, Kopcek, and Tanuska, 2013). Different types of stored data are involved in the BI component. Utilizing software tools to transform unstructured data into valuable sources of information that each division can use to boost sales is the key. By employing this tactic, business intelligence analysts could develop data tools that enable data to be added to a sizable database of spreadsheets, tables, pie charts, or graphs that can be utilized for a range of business objectives. Data can be utilized, for instance, to make presentations that support the organization of realistic team objectives. Organizations can make fact-driven decisions that consider a more comprehensive picture of the needs of the business by considering the strategic aspect of data sources.

Data Warehouse:

Al-Atwi (2018) defines a data warehouse as a database that offers query tools and reports, as well as storing current data, historical data from both old and new sources, and statistical data that are gathered from various operational systems and combined to produce reports, administrative analyses, and decision-making. With the aid of data warehousing, company executives can analyze linked elements within subsets of data that can propel their enterprise. Seasonal offerings and product development can be enhanced by examining sales data spanning multiple years. Moreover, business process statistics, including their interrelationships, can be examined through data warehousing. To see which departments and teams are most productive, business owners can, for example, compare shipping times across various facilities. Another aspect of data warehousing is the strategic storage of massive volumes of data for the benefit of various business units.

Data Mining:

In order to extract information from datasets that can be used for tasks like forecasting, estimation, and decision support, a range of techniques known as data mining must first be applied. Finding relationships and global patterns in large databases that are concealed by the abundance of data is possible through data mining, which is the non-intuitive extraction of implicit, previously undiscovered information (Khan and Quadri, 2012).

Data Analysis (Reporting):

The ability of data analysis techniques to reshape information and present it to the beneficiary in various formats and ways makes them crucial for Business Intelligence applications. Immediate analytical processing and data mining are two categories of data analysis techniques (Shabeer, 2015).

Information Display:

Since these technologies constitute the visible portion of the business intelligence system and are judged on their capacity to present data in a manner that renders it pertinent, their effectiveness in facilitating the information display process is largely responsible for the BI system's ability to meet its objectives (Ali, 2020).

Benefits of Business Intelligence for SMEs

The benefits of Business Intelligence solutions are numerous and go beyond just providing data insights. Here are some of the key benefits of business intelligence for small and medium-scale enterprises:

Improved Decision-Making:

Business Intelligence insights help leaders make data-driven decisions. Such insights provide decision-makers with accurate, timely, and relevant information. Whether it is about launching a new product, identifying a market trend, or forecasting demand, business intelligence provides the necessary insights to make informed decisions.

Enhanced Operational Efficiency:

Business Intelligence solutions enable small and medium-scale enterprises to identify operational inefficiencies, optimize processes, automate workflows, and reduce costs. For example, a clothing manufacturer can use Business Intelligence tools to monitor inventory levels, identify stock-outs, and optimize their inventory management system to avoid stock-outs, thus reducing lost sales and improving the customer experience.

Increased Competitive Advantage:

Business Intelligence insights provide small and medium-scale enterprises with a competitive advantage. By analyzing data, small and medium-scale enterprises can identify market trends, consumer behaviors, and competitive threats. Such insights enable small and medium-scale enterprises to adapt quickly to market changes, stay ahead of the competition, and make smart business decisions.

Better Customer Relationship Management:

Business Intelligence solutions provide small and medium-scale enterprises with insights into their customers' behaviors, preferences, and buying habits. Such insights enable small and medium-scale enterprises to personalize their products and services, improve customer satisfaction, and drive customer loyalty.

Financial Performance Analysis and Optimization:

Business Intelligence solutions enable small and medium-scale enterprises to monitor, analyze, and optimize their financial performance. Business Intelligence tools enable SMEs to track revenue, expenses, profitability, and cash flow. Such insights help small and medium-scale enterprises to identify financial risks, optimize pricing, and reduce costs.

Decision Making

Arguably, the success or otherwise of an organization to a large extent depends on the decision(s) made by such a firm. It is also profitable to make a business decision even if it turns out negative (at least) people will learn from it rather than not taking it at all. When faced with a set of objectives and available resources, a person, group, or organization that makes decisions determines what activities to pursue. Iteration, problem framing, intelligence gathering, drawing conclusions, and experience-based learning will all be extensively used in this approach. African businessmen, particularly Nigerian owner-manager MSME operators are good at making such valuable and timely business decisions, and that has paid off considering their contributions to economic growth and sustainability in the continent.

Theoretical Framework

The following theories were employed to support the study in order to relate it to prior research and clarify its theoretical presumptions. Technology Acceptance and Use Unified Theory (UTAUT) was adopted by the study.

Venkatesh *et al*., (2003) developed a theoretical framework called the Unified Theory of Acceptance and Use of Technology (UTAUT) to explain users' acceptance and use of technology. In order to offer a more thorough understanding of users' behaviors, it expands and combines earlier technology adoption models.

UTAUT argues that four key factors influence users' behavioral intentions and actual technology usage:

Performance Expectancy:

Users' belief that using technology will enhance their job or task performance. This includes the perceived usefulness and usefulness in achieving goals.

Effort Expectancy:

Users' perception that utilizing technology will be simple and need little work. This covers the technology's perceived complexity and ease of use.

Social Influence:

Users' perception of social norms and influence about adopting and using technology. This includes the influence of peers, supervisors, and other social factors.

Facilitating Conditions:

Users felt they had access to the tools and assistance they needed to use technology efficiently. This covers the accessibility of infrastructure, training, and technical support.

UTAUT suggests that these four variables have a direct impact on users' intentions to use technology, which has an impact on users' actual behavior when using it. The relationship between the four factors and users' intentions and usage can be influenced by a number of moderators, including gender, age, experience, and voluntariness of use.

The UTAUT framework has been widely adopted and applied in various settings and technologies to understand users' acceptance and use behaviors. It provides insights for researchers, practitioners, and policymakers to identify and address factors that affect users'.

Empirical Review

To provide an answer to the specific research question guiding this study, the researchers empirically relied on measurements and evidence from the empirical literature as seen below.

Pacheco-Velázquez, Vázquez-Parra, Cruz-Sandoval, Salinas-Navarro, and Carlos-Arroyo (2023) examined how decision-making in the business domain and the capacity for complex thought relate to each other and to sub-competencies. Scopus and Web of Science provided a sample of 339 articles that were relevant to both topics, which were used in the investigation. The data were quantitatively analyzed using R, Rstudio, and Bibliometrix. As it offers more exceptional skills and tools for future managers, the study concluded that there is a broad opportunity when thinking about the link between macro-competency and decision-making in business.

Hoang and Bui (2023) examined the use of business intelligence and analytics (BIA) in micro, small, and medium-sized businesses (MSMEs). After providing insight into the BIA systems' adoption by MSMEs, the study suggests a framework for the BIA adoption process within their specific context. To extend the theoretical boundaries of the strategic management fields in the context of MSMEs' adoption of BIA, a variety of case research designs and interpretivism approaches were utilized. Owners and senior managers from 17 participating MSMEs who were involved in the adoption of BIA were interviewed in 35 semi-structured interviews. The study delineates three distinct phases of business intelligence adoption, each of which corresponds to a different level of BIA maturity among small and medium- sized enterprises. These phases encompass distinct technical and managerial characteristics. The usage of business intelligence

analytics and MSMEs' improved strategic management were found to be strongly correlated by the study.

Asman and Manurung (2023) examined the sustainability of MSMEs' board houses and their business intelligence (Case Study of Boarding Houses in South Tangerang City). Through a review of the literature on MSME- related publications and regulations, the study examined initiatives taken by MSME actors to preserve their business continuity. The steps MSMEs must take to stay in business were examined using descriptive qualitative methods. The information used is secondary data about turnover, income, and government assistance for MSMEs that can be found in official reports and publications from relevant parties. The study's findings demonstrate the need for active participation from all MSME actors and the inadequacy of government policies alone. With local governments' assistance, the government can optimize socialization to ensure proper receipt of assistance. In order to keep their business running smoothly, MSME actors also contribute to changes in production innovation, technology use, and marketing through digitization.

Oguejiofor (2022) analyzed corporate choices and their impact on Anambra State, Nigeria's economic growth. Pearson Product Moment Correlation Coefficient analysis was performed on the gathered data. The results showed that the primary factor separating an organization's success from failure is executive decision-making ability. Empirical evidence supports the notion that sound business decisions eliminate uncertainty in the marketplace, improve human resources, finance, marketing, time management, and public relations. Because it contributes to a company's success and increases profit, the study suggested that business decision-making abilities should be promoted.

Kasasbeh, Alzureikat, Alroud, and Alkasassbeh (2021) investigated how entrepreneurial marketing moderates the relationship between business intelligence systems and competitive advantage in Jordanian commercial banks. An electronic survey design was used in the study. Heads of sections, assistant managers, and managers of Jordanian commercial banks make up the study's population of (493). For this study, 305 people make up the sample. A defined set of questions was used to collect data. Using a statistical package for social sciences, partial least square (PLS-SEM) was used to test hypotheses while descriptive statistics, such as mean and standard deviation, were used to analyze data. According to the study, competitive advantage benefits from business intelligence systems.

Sweis and Abdeen (2019) investigated whether BI systems could improve Palestinian banks' organizational competency. One hundred and twenty bank employees (Bank of Palestine, Cairo, Amman Bank, Arab Islamic Bank, and Palestinian Islamic Bank) were sampled for the study, to gather data through a questionnaire. BI systems and the development of organizational genius are positively correlated, which is the study's most significant finding.

Faiz and Faisal (2018) investigated how business intelligence affected the Saudi Electricity Company's employees' job satisfaction in Asir. Once a BI system for work practices has been implemented, its goal is to assess employee job satisfaction. To collect data, a mixed-method approach comprising an analytical approach and a descriptive questionnaire was employed. 354 employees out of 3,000 make up the random sample population. Findings indicate that a statistically significant impact on employee job satisfaction is attributed to the deployment of BI systems and related practices. For organizational activities, the study suggests implementing BI systems. When addressing business problems, these organizations need to take into account the newest BI tools available.

Kasim, Zijad, Mahir, and Merima (2018) looked at how business intelligence (BI) is used in Bosnia and Herzegovina's small and medium-sized businesses (SMEs). Research design for the study was survey-based. In order to collect pertinent data from the respondents, a structured questionnaire was utilized. A total of 2500 questionnaire was distributed by email to the respondents while 101 was properly filled and returned. Data were analyzed using a graphical method. The results of the study showed that SMEs can considerably benefit from the deployment of business intelligence systems, particularly when it comes to enhancing strategic and business decision-making, optimizing resources continuously, streamlining business procedures, and increasing the effectiveness of SME operations. The study's recommendations, based on its findings, suggest that, in order to improve the current implementation of the new information system and meet the needs of small and medium-sized enterprises (SMEs) in the future, it should be improved by anticipating current and future KPI requirements. This will enable the necessary data to be collected and grouped in a way that best suits their needs.

METHODOLOGY

Participants

The researchers purposively and conveniently selected six (6) participants in all. Two (2) participants, a male and a female (for gender equality) were taken from each of the three (3) Senatorial Zones of Anambra North, Central, and South. Participants were chosen based on the following criteria: the participants must be registered MSME operators in Anambra State, must be paying tax to the state government, must be owner-managers of a business within the study area must be in a decision-making carder in the company and above all, is willing to participate in this study. In qualitative research, five participants is the minimum that can be involved (Onalu, Uchechukwu & Okoye, 2020). The

justification for using owner-managers in this study is that they take direct responsibility for any decision taken in the company. The study is descriptive and qualitative.

Material and Procedure

A set of six (6) open-ended questions intended to ascertain the purpose of the study served as the instrument for gathering data in an unstructured interview. Accepted by all the researchers, the instrument was slightly modified and adopted from the study of Anoke, Nzewi, Eze, and Igwebuike (2022). Both telephone interviews (for participants who are far away and in an unsecured environment and in-depth interviews (for those that can be easily accessible, which equally allow for one-on-one contact with unfiltered and firsthand information with the respondents) were chosen as data collecting strategies.

All the researchers participated in the interviews, data analysis, and interpretation. After each of the participants' permission was sorted and granted orally, the interviews were recorded and transcribed using the Otter.ai tool and analyzed using Nvivo 12, Microsoft Word, and Microsoft Excel. Respondents were guaranteed their personal information as ethical issues were strictly adhered to before, during, and after the study. Since the respondents' business time is so important, each interview took place for a maximum of fifteen to twenty-five minutes. While a Samsung smartphone with recording capabilities served as a backup, a digital midget equipped with a cell recording feature was utilized during the interviews.

Unstructured text, audio, video, and image data can be analyzed and arranged using the Nvivo program. It also includes a playback feature for both audio and video files, making transcription of the interviews simple. This serves as the rationale for the study's preference for Nvivo over alternative qualitative analytical tools. Following transcription, a thematic appraisal was conducted on the data. The comments revealed two major themes. Below, the themes are discussed:

Thematic categories were made after the replies were meticulously transcribed and analyzed, adhering to the guiding principles of qualitative research methodology. A Microsoft Word Excel spreadsheet with numerous subthemes based on the transcript was created using the transcribed data after it was organized. Prior to being harmonized and separated into two primary categories—competitive advantage and operational efficiency—the multiple data entry forms were subjected to internal validation upon completion to ensure that the responses were appropriately classified.

RESULTS AND DISCUSSIONS

Firms Competitive Advantage and Business Intelligence

The researchers sought to know from the respondents if business intelligence enables them to have a competitive edge over their business rivals. The respondents generally agreed that business knowledge and intelligence help them not only compete effectively but also enable them to make appropriate and timely business decisions thereby outsmarting their business contenders. One of the participants reported that "since I learn and have knowledge of business intelligence, my business strategy improved and how I manage my business information through proper data sourcing, storing and analysis has helped my business better than before" (Participant 3 Female, Ogbaru, Anambra Central**)**.

The business intelligence idea has helped me in visualizing my customer's spending trends quickly. This I do through monitoring their purchase on a daily, weekly, monthly, or even annually. By identifying these trends, good business decisions are made new sales opportunities are created and the overall gain is a strong competitive advantage (Participant 1, Male, Idemili North LGA, Anambra North Senatorial Zone).

Participant 5, Female, Orumba South, Anambra North Senatorial District responded to the interviewer's question by saying "the importance of BI lies with cross-selling complementary products". She maintained that if you are a monopolistic type of business, your product must win without BI.

Still discovering how business intelligence helps firms to have a competitive advantage over others, Participant 6, Male, Dunukofia, Anambra North, responded "Please interviewer or what do you call yourself, how many people have you seen that business intelligence helped in Nigeria? When they ask you people to look for better work to do, you will not agree. Anywhere, if you want to know, BI helps me in proper forecasting and developing good products required by my customers.

Additionally, Participant 2, a Female, Onitsha, Anambra Central revealed that business intelligence helps source, store, and analyze business information which helps in making good timely business decisions. This has helped firms especially to edge others in a competitive business environment like Onitsha Main Market. She maintained that she is ready to spend more resources to acquire new business technology and data analytical tools to remain a leading name within their business cycle.

Finally, on how firms gain competitive advantage as a result BI, Participant 4, Male, Ogbaru, Anambra Central, argued that despite the advantages of BI on the good business decision-making process, the

disadvantage outweighs its advantages considering the cost implication therein. To him, the cost of acquiring modern technological equipment to compete favorably is not easy to go by considering the cost of doing business, especially in Nigeria today.

Business Intelligence and Operational Efficiency of MSMEs

The researchers equally sought to find out how business intelligence leads to the operational efficiency of MSMEs especially in Anambra state Nigeria. One of the participant stated that BI helps him to put his financial budget to good use. Based on the information sourced, stored, and analyzed, current business models, techniques, methods, and processes are improved and higher revenue is achieved (Participant 2, Male, Oyi-Anambra Central)

Participant 6, Female, Aguata-Anambra South established that no business can compete effectively and efficiently in the current business environment without adapting to the current technological revolution that is driving the business world today. She said, "You know that technology has taken the face of the business world and anybody that wants to succeed in business today must be technological compliance". She maintained that her business was already suffering a setback before she acquired BI, which is the key to operational efficiency in MSMEs.

Still on the BI and its effect on the operational efficiency of MSMEs, Participant 4, Female, Awka South in Anambra North Senatorial Zone said "Businesses can estimate client demand with BI, and they can track how that demand evolves". She maintained that through the help of BI which gives room for good business decision-making, customers' behavior is predicted and their satisfaction is guaranteed.

To enquire more on the second thematic category, the reviewers interviewed Participant 1, Male, Ihiala in Anambra South Senatorial Zone who said "business intelligence systems provide high initial cost, gaps in data context, and potential human bias which must be addressed before it will have any meaningful impact in business". So he thinks that the operational efficiency of a business firm has little or nothing to do with its BI.

Furthermore, Participant 3 Female, Anaocha, Anambra North when contacted to air her views on the subject matter told the interviewers that she was willing but was not disposed at that moment due to her commitment and engagement in the family affair which to her is her primary constituency.

Finally, as the interviewers wrap up this section, Participant 5, Male, Onitsha in Anambra Central Senatorial Zone responded to the effect of BI on the operational efficiency of MSMEs in Anambra State by saying that "BI is a technological–driven process that helps in analyzing data and delivering actionable information that helps owner- managers make informed and timely business decisions. This according to him improves the operational efficiency of firms especially in a competitive business environment.

DISCUSSIONS

From the responses from the respondents, it is transparently clear that business intelligence is pivotal for timely decision-making in firms especially the MSMEs sector of the Nigeria economy. It was deduced from their responses that BI is a strategy used by owner-managers in an organization to achieve operational efficiency and competitive advantage in a tense business environment like Nigeria. Therefore, investing in modern technological equipment to drive business programmes and processes will be a wise decision.

It was also realized from the reviewed literature that most countries with strong economies paid substantial attention dynamics of their MSMEs, which are considered as an engine room for economic development and sustainability globally. For Nigeria to remain on the world economic map, it is expected that it must strengthen its economic frontier technological-driven, and market activities that must be MSMEs friendly. In Nigeria, however, despite the positive roles BI through technological advancement is expected to play, most MSME operators seem not to have perceived the need for data governance in identifying areas that require improvement and making data-driven decisions to optimize operations. Thus, in order to help MSME operators, particularly those in Awka, Anambra State, Nigeria, assert their legitimate economic position on the global chart, this study looked into the factors that contributed to the gap and potential solutions.

When the interviewers requested to know if business intelligence leads to good business decision-making that can result in competitive advantage, one of the respondents opined that through proper data sourcing, storing, and analysis her business has transformed technologically better than before thereby giving her an edge over her rivals.

Another participant argued that technology today is driving the business world and the success or otherwise of firms depends largely on its technological compliance. He maintained that BI which is technologically driven is capable of reviving a depressed firm. The results of Asman and Manurung (2023), who discovered that MSME actors also contribute to changes in production innovation, technology utilization, and marketing through digitization in order to sustain the viability of their business, are consistent with this finding. They argued that the adoption of business intelligence systems by MSMEs has a number of positive effects on the company, particularly when it comes to enhancing strategic and commercial decision-making,

optimizing resources continuously, enhancing business procedures, and enhancing the effectiveness of MSME operations.

In a related development, one of the participants viewed efforts in acquiring business intelligence for firms' operational efficiency as economic waste. According to him, business intelligence systems provide high initial costs, gaps in data context, and potential human bias which must be addressed before it will have any meaningful impact on business. He believed that the system is garbage in garbage out and will not by any means contribute to the efficiency of organizational operation. The results presented here are in opposition to those of Faiz and Faisal (2018), who found a statistically significant impact on employee job satisfaction from the implementation of a BI system and related practices. The first respondent informed the interviewers that her business has improved greatly through the knowledge of BI as she manages her business information properly through data sourcing, storing, and analysis. This finding is in tandem with the findings of Kasasbeh, Alzureikat, Alroud, and Alkasassbeh (2021). Their study revealed that Business Intelligence Systems (BIS) have a positive effect on Business Competitive Advantage (BCA).

On the relationship that exists between BI, good decision-making, and firm operational efficiency, most of the interviewed respondents are in agreement that good business decision is pivotal to firm operational efficiency. The first respondents agreed that based on the information sourced, stored, and analyzed, current business models, techniques, methods, and processes are improved, operational efficiency gained and higher revenue achieved. This finding is in consonant with the findings of Oguejiofor (2022) who found that a good business decision made, enhances time management, finances, marketing, communication, human resources, and business ethics, and kills business uncertainty.

Furthermore, participant 5 contends that BI is a technological–driven process that helps in analyzing data and delivering actionable and timely information needed by owner-managers to make informed and accurate business decisions. This finding is also consistent with the research conducted by Pacheco-Velázquez, Vázquez-Parra, Cruz-Sandoval, Salinas-Navarro, and Carlos-Arroyo (2023), which found that there is a wide range of opportunities when considering the relationship between thinking macro-competency and decision-making in business, as it offers exceptional skills and tools for future managers.

CONCLUSION

From the findings, it is evident that the world is technologically driven and countries, businesses, and organizations that want to remain relevant in this knowledge-based age must key into the global trend. Furthermore, it is important to remember that the majority of economically successful nations in the world are technologically advanced thanks to sound business judgment and prompt decision-making; Africa, particularly Nigeria, cannot fall behind in this global trend. It is evident from the findings that Africa especially Nigeria is not doing badly in the MSMEs sector of the economy and to sustain this stride, governments at all levels must factor in MSMEs and technology into their policy formulation and implications. It is only that is done that Africa in general and Nigeria in particular can boost not only registering its name on the global economic map but will have a viable economic base that will continue to attract foreign investment (Bride to all investors- Africa, the hope of the world economy).

Limitation of the Study

Although all of Africa was supposed to be covered by this study, logistical concerns led to its settlement in Anambra State, Nigeria. More research is anticipated to be conducted in other African nations, particularly South Africa, which has a robust economy. Validation of this study can only occur after that is completed.

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Conflicting Interest

Worth mentioning is the fact that there is no conflicting interest among the researchers in terms of choice of language used, instrument, models, and or publishing house to be used. It was agreed that Scholar journal of Economics, Business and Management should be used for the publication due to in-depth review technique and global visibility.

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Ethical Issues

All ethical issues are strictly adhered to before, during, and after the study. The identities of the respondents are kept secret as promised and agreed upon throughout this study's period and beyond.

REFERENCE

- Al-Atwi, M. D. A. S. (2018), "The impact of business intelligence systems on the effectiveness of information and communication technology companies in Saudi Arabia", Unpublished Master's

Thesis, College of Business, *Amman Arab University*.

- Ali, H. A. A. R., & Nasser, B. (2020). The Role of the Business Intelligence System in promoting high performance. *The Arab Journal of Management*, *40*(4).
- Al-Masab, A. (2018). "The effect of management knowledge on business development", *Journal of Business Research*, *14*(1).
- Anoke, A. F., Osita, F. C., Okafor, J. N., & Nzewi, H. N. (2022). Strategic Entrepreneurship Alliances and Sustainable Growth of Small Businesses in Nigeria: The Nexus. *Global Journal of Management and Business Research*, *22*(7), 13-19.
- Anoke, F., Ngozi, N. H., Uchechukwu, E. S., & Joyce, I. (2022). Entrepreneurial Marketing and SMEs Growth in Post Covid-19 Era in Awka, Anambra State, Nigeria. *International Journal of Financial, Accounting, and Management*, *4*(2), 115-127.
- Asman, Z., & Manurung, A. H. (2023). Business Intelligence of MSMEs Boarding Houses, and Their Sustainability (Case Study of Boarding Houses in South Tangerang City). *Dinasti International Journal of Management Science*, *4*(6), 1196-1203. https://doi.org/10.31933/dijms.v4i6.1956.
- Farjami, Y., & Molanapour, R. (2015). Business intelligence (from Idea to Practice). *Ati-Negar Press*.
- Hoang, T. G., & Bui, M. L. (2023). Business intelligence and analytic (BIA) stage-of-practice in micro-, small-and medium-sized enterprises (MSMEs). *Journal of Enterprise Information Management*, *36*(4), 1080-1104.
- Khan, R. A., & Quadri, S. M. (2012). Business intelligence: an integrated approach. *Business Intelligence Journal*, *5*(1), 64-70.
- Kopčeková, A., Kopček, M., & Tanuška, P. (2013). Business Intelligence in process control. *Research Papers Faculty of Materials Science and Technology Slovak University of Technology*, *21*(33), 43-53.
- Marchese, M., & Medus, J. (2023). *Assessing greenhouse gas emissions and energy consumption in SMEs*: Towards a pilot dashboard of SME greening and green entrepreneurship indicators, OECD SME and Entrepreneurship Papers.
- Negash, S. (2004). Business intelligence. *Communications of the association for information systems*, *13*(1), 15.
- Oguejiofor, N. D. C. (2022). Business decision marking and economic growth have an expertized effect. *International Journal of trend in scientific research and Development*, *6*(6), 1017-1025
- Okonwo, S. N. (2023). https://www.linkedin.com/pulse/importance-data-analytics-decision-making-strategic-okonkwo.
- Pacheco-Velázquez, E. A., Vázquez-Parra, J. C., Cruz-Sandoval, M., Salinas-Navarro, D. E., & Carlos-Arroyo, M. (2023). Business decision-making and complex thinking: A bibliometric study. *Administrative Sciences*, *13*(3), 80. https://doi.org/10.3390/admsci13030080.
- Shabeer, M. M. O. (2015). "The role of business intelligence systems in developing human capital in the Palestinian banking sector: a case study: Bank of Palestine", Unpublished Master's Thesis, College of Commerce, *Islamic University, Palestine*.
- This seminal study introduced and validated the UTAUT model. The researchers conducted a meta-analysis of existing models and theories to develop UTAUT and tested it in the context of technology adoption.
- Thor, O., & Josh, F. (2023) Business Intelligence-Definition and Solutions. https://www.cio.com/article/272364/business-intelligence-definition-and-solutions.html.
- Tutunea, M. F., & Rus, R. V. (2012). Business intelligence solutions for SME's. *Procedia economics and finance*, *3*, 865-870.
- Valero. (2017). Dimensional model. BI-Geek Blog. https://blog.bi-geek.com/dimensional-model
- Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User acceptance of information technology: Toward a unified view. *MIS quarterly*, 425-478.