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Achieving Efficient Business Performance Through Implementation of Business Intelligence Analytics

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Abstract: This study investigates the impact of Business Intelligence (BI) and Business Analytics (BA) on business performance. Using a sample of 383 respondents, data were collected on demographic characteristics and levels of exposure to BI and BA tools. The study employed independent t-test analysis to examine two hypotheses: the effect of BI on business performance and the effect of BA on business performance. Results showed statistically significant differences between groups with high and low engagement in both BI and BA. Specifically, respondents with higher exposure to BI and BA reported significantly better performance outcomes compared to those with lower exposure. These findings suggest that BI and BA are critical drivers of organizational productivity and effectiveness. The study concludes that organizations aiming to enhance business performance should invest in BI and BA capabilities, integrate them into their strategic processes, and provide continuous training to employees. Recommendations include fostering a data-driven culture, aligning BI/BA initiatives with business goals, and adopting continuous performance evaluation systems.

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Introduction

Today, business intelligence is increasingly discussed in almost every facet of life. BI helps businesses make their vital data and procedures accessible and intelligently. Also, workers can have stronger choices; accomplish their necessary outcomes more quickly and consistently. Other advantages of BI systems include helping businesses improve profitability, lower prices, mitigate uncertainties, and maximise added value. Massive volumes of data are accessible but usage of BI systems muddies things. Big businesses and firms used to be interested in BI, until recently they found out the BI's potential. Intelligence is defined as information that is respected for its timeliness and relevance. It is the application of expert intelligence, expertise, and technology to the management of corporate and individual businesses. As a result, Market Intelligence is a wide

category of software and technology for collecting, having access to, and reviewing data in order to assist corporate customers in making informed business decisions in this context. The concept means a thorough understanding of all the aspects that influence a company's operations. To make successful and high-quality strategic choices, companies must have extensive knowledge of variables such as clients, rivals, business partners, the economic climate, and internal processes. These types of decisions can be made with the help of business intelligence (Ranjan, J. 2009).

The concept intelligence has two specific meanings in the context of business intelligence (BI). The first is the use of human intelligence capability in commercial operations, which occurs less often. Business intelligence is a recent area of research into the integration of human cognitive abilities and artificial intelligence technologies to the management and decision support in different business problems. Firms now evaluate their output in several ways, such as CPM. This is also defined as management strategies and innovations that support company success (Frolick & Ariyachandra 2006). Clark et al. (in 2007) admit that no research has been done on this important facet of the marketplace (Vuksic et al. 2013). Sufficient concern has been expressed to pique interest in research into whether it is in operational processes (Elbash et al. 2008), critical factors in operational BI, and the state of BI development (Dinter 2012; Lahrmann et al. 2011).Despite this, research is currently being done into how BI impacts organisational management.

Conceptual Explanation of Business Intelligence and Analytics

After the '90s, the word "Business Intelligence' (BI) was referred to research and execution, and production have both been included. BI has been a common procedure in industry and in medicine. Nevertheless, the word is open to interpretation. As a result, the word has many meanings. By reference, it is difficult to demarcate because the definition is exact. In 1996, market intelligence was referred to as "Data collection, monitoring, and question methods can assist consumers in collecting useful knowledge from data" (Anandarajan, Srinivasan, and Anandarajan, 2004). Data mining has gained prominence through the fact that a lot of valuable data is readily available and the market has a strong need for transforming data into usable content. The insights and expertise acquired are applicable to a variety of industries, production control, sector, and architecture, as well as well as engineering. Data mining describes collecting information from vast volumes of data (after Han & Kamber, 2000).

The OAPS highlights the multidimensional summarization is used for all three market functions of publishing, modelling, and maximising Data centres and data marts both provide an abundance of methods and resources for analysing online computational purposes. The query framework lets users find what is really necessary for the organisation to succeed. Even though data base searches are accepted as the most successful method to access the company's product database analysis results, no analyses have described the advantages of linking those two processes (Agrawal et al., 2001). However, by utilising database queries for product searches, one big problem is the linguistic difference between the requirements of the goods and the keywords that users input (Vander Meer et al., 2012).

Importance of Business Intelligence and Analytics

Business intelligence and analytics are developed to systematically monitor performance (Chen & Siau 2012; Negash 2004). Each BI framework includes a variety of technologies (Baars & Kemper 2008; Ramakrishnan et al. 2012). Prior literature claims, online analytic analysis (OLAP) helps decisionmakers to interpret diverse data from several angles (Baars & Kemper 2008; Wixom, et al. 2008). E.g, a Dangote Group of Company wants to review sales of a certain drill to help grasp sales over a certain period of time. It becomes paramount that complementing drilldowns with software that supports the dissemination of web results (some that even provide scorecard/dashboard functionality (Bose 2006). Although detailed reports will provide any point

of view required by managers, scorecards and dashboards provide uncertainty for decisions. Since BI allows quicker and more relevant links to performance metrics for end users (Müller et al. 2010; Negash 2004), users are able to conduct analyses themselves without IT department assistance) It will aid in managers' understanding of the details and make it easier to derive from (Negash 2004; Watson & Wixom 2007; Sahay & Ranjan 2008). The BID affects the CPMs in a variety of ways. Over all, it facilitates quick and effective response to demands. Data manipulation may be done through BI, which means explicitly affecting analysis. Given the fact that operational business processes are the driver of the accomplishment of corporate objectives such as customer satisfaction or supply chain efficiency (Elbash et al. 2008)

Performance Indicators: Business Performance

According to Frolick and Ariach (2012), it is management and analytical processes that allow business managers to accomplish their goals. It is critical to maintaining acceptable standards of organisational efficiency at both low and high levels of operation, and high levels of detail, that all the roles of the organisation are assessed (Mann and Kehoe, 2009).

The frequent and extensive organizational reform in almost every sector has contributed to the disruption of their business transactions (Kaplan and Norton, 2010).Turning to produce better results through new methods necessitates a change in business theory, focusing on whether the environment wants to expand rather than short-term profit-based goals (Slater, Olson, and Reddy, 2012).

It is believed that the three primary functions of business success assessment are target selection, knowledge aggregation, and manager interference. Although the corporation takes into consideration the many divisions that it is part of, it ensures that the organisational priorities and strategies are accomplished timely. Among other aspects, good organisations ought to do is build, adaptive strategies and have more systems for regulating and directing competition (Maskell, 2012).

As the Nigerian government continues to focus on actual needs, measures of productivity and efficiency (currently) such as company size and expansion as criteria for merit rises in calculation, productivity and efficiency are likely to grow significantly in the country. Primarily by evaluating its results on the output of its internal customers, its operational results on the industry, and systemic results, and financial management primarily on stock price and wealth measures (Maskell, 2012). The implication is that that accurate calculation needs to monitor progress with regard to business-wide capital as well as ensuring effective application of the business's use of both material and non-and immaterial aspects of product resources. redescribing and reestimating what constitutes success and determining how to use different kinds of measures of results (Maskell, 2012). Through handling the above five critical activities, the main principles of strategic market measurement are adhered to: taking the expectations of each group of the various stakeholders, then measuring these; (1) knowing what the organisation should be doing and the performance expectations each stakeholder should meet, the feasibility of the organisation and the value of each group's contribution; (2) evaluating value for stakeholders and profitability standards, then determining the efficiency factors; (3) analyzing expected results and current returns, identifying what each stakeholder can expect; (4) determining whether or not organisations are able to provide returns and realising what their expectations are (Atkinson, Waterhouse and Wells, 2009).

It is incumbent on corporate managers to create processes that will assess and ensure organisation success accountability that often happens on an objective basis. Such a system review will add an effective logical method to the list of process methods already implemented into the output system. often included in calculating company efficiency of small and microprocessors, benefit of the consumer, and micro-or product-satisfaction (Wood, 2006). BPM (economic performance

measurement) may be a testing instrument for many fields, including business and social science. Organizational efficiency is broken down into two classes: organisational performance and strategic output (Mann and Kehoe 2009). Not all of the established success metrics listed as a few of the sub-variables in the analysis have worked as they would have predicted if seen to be seen to be. However, some performed well: revenue increase, market share, and working capital.

Objectives of the study

To examine the effects of business intelligence on business performance

To examine the effects of business analytics on business performance

Research Hypotheses

There is no significant effect of business intelligence on business performance.

There is no significant effect of business analytics on business performance.

Research Methodology

Research Design

The design may be defined as an outline, or as a basic arrangement. A research design, according to Nworgu (1991:136), is a schedule or blueprint that describes how data related to a specific issue should be gathered and evaluated. It lays out the steps to follow before conducting an inquiry.

Area of study

As a subject of research, Owerri was selected. It is also the state capital of Imo State. Owerri is situated at 0532 North and 07 560 East

Source of Data

There are two types of data in the research: main and secondary. In accordance with the primary evidence (2009: 141), a clear or initial account is provided of events or manifestations of someone who did indeed witness the occurrence or phenomenon. There is important data collected from other people's activities. The following documents contained: textbooks, journals, magazines and non-published papers; research, research and related activity reports; policy manuals for selected companies.

Population of the Study:

The sample community is composed of the entire metropolis household. A population can be identified as a set of items, individuals or events that share a common characteristic which Unyimadu (2005) points out the researcher wants to examine. The population is available, endless or limitless. It is referred to as a goal population. The objective community corresponds to a population that is actually or definitely to be observed. The community that can be reached is available. A Finite population is a population which can not be measured by scale or amount or is too burdensome to decide. Uzoagulu (1998:65) wants people to have the same qualities necessary for the inquiry.

Sampling and Sample Size

The sample sizes of 383 respondents were in the study area**.** The sample size was statistically determined using the sample fraction

Data Collection Instrument and Validation:

A questionnaire adopted by Teseema and Socters' (2006) and Allen and Meyers was the test tool used for the study; (1990). Data from the independent and dependent variables presently in both sections A and B of the questionnaire is obtained from the questionnaire. During the measurement in section A, section B calculated the demographic information of the individuals such as name, gender, age, qualification in education and marital status. In the analysis, the scale of Likert (1932) was used.

Techniques of Data Analysis:

The data obtained was analyzed using Pearson moment correlation analysis.

ANALYSES

Data Analyses and Results

Table 2: Distribution of Respondents by sex

Sex	No. of Respondents	% of Respondents
MALE	194	50.65
FEMALE	183	47.78
Total	**383**	**100**

Table 2 shows that one hundred ninety four (194) respondents representing 50.65% of the sample population were male while one hundred and eighty three (183) respondents representing 47.78% of the population were female.

Table 3: Age Distribution

Age	No. of respondents	% of Percentage
20 – 25	106	27.67
26 – 30	77	20.10
31 – 35	56	14.62
36 – 40	88	22.97
41 – Above	56	14.62
Total	**383**	**100**

Table 3 shows that hundred and six (106) respondents representing 27.67% of the sample were between the age bracket of 20 – 25 years, seventy seven (77) respondents each representing 20.10% were between the age bracket of 26 – 30 years, fifty six of the respondents representing 14.62% were 17% were 31 – 35 years respectively, also eighty eight (88) respondents representing 22.97% of the sample were between the age limit of 36 – 40 years and fifty six (56) respondents representing 14.62% were within the age limit of 41 and above years.

Table 4: Marital Status Distribution

Status	No. of Respondents	% of Respondents
Single	158	41.25
Married	134	34.98
Divorced	55	14.36
Widow/Widowers	36	9.39
Total	**383**	**100**

Table 4 above shows that one hundred and fifty eight (158) respondents representing 41.25% of the sample were single, one hundred thirty four (134) respondents representing 34.98% of the sample were married, only fifty five (55) respondents representing 14.36% of the sample were divorced as well as only thirty six (36) respondents representing 9.39%

Table 5: Educational Qualification Distribution

Qualification respondents	No. of Respondents	% of Respondents
WAEC/NECO	162	42.29
OND	101	26.37
HND/BSC	53	13.83
MSC	21	5.48
PHD	46	12.01
Total	**383**	**100**

Table 5 shows that one hundred and sixty two (162) respondents representing 42.29% of the sample were WAEC/NECO holders, one hundred and one (101) respondents representing 26.37% were OND/NCE certificate holders; fifty three (53) respondents representing 13.83% were holders of HND/BSC certificates holders, while twenty one (21) respondents representing 5.48% were MSC certificate holders and only forty six (46) respondents representing 12.01% of the population were PHD holders.

Hypothesis One

There is no significant effect of business intelligence on business performance. In-order to test the hypothesis. Independent t-test analysis was used in comparing the mean score of the two groups. (See table 4.1).

TABLE 6 Independent t-test analysis of effect of business intelligence on business performance				
Variable	**N**	**X**	**SD**	**t**
High	234	12.01	1.30	
				21.45*
Low	149	15.15	0.71	

Significant at 0.05 level; df= 381; N= 383; critical t-value = 1.96

The above table 6 presents the obtained t-value as (21.45). This value was tested for significance by comparing it with the critical t-value (1.96) at 0.05 level with 381 degree of freedom. The obtained t-value (21.45) was greater than the critical t-value (1.96). Hence, the result was significant. The result therefore means that there is significant effect of business intelligence on business performance.

Hypothesis two

There is no significant effect of business analytics on business performance. In-order to test the hypothesis independent t-test analysis was used in comparing the mean score of the two groups. (See table 4.2).

TABLE 7 Independent T-Test Analysis Of Effect Of Business Analytics On Business Performance

Variable	N	X	SD	t
High	201	12.07	1.34	
				18.31*
Low	191	15.00	1.09	

Significant at 0.05 level; df= 381; N= 383; critical t-value = 1.96

The above table 7 presents the obtained t-value as (18.31). This value was tested for significance by comparing it with the critical t-value (1.96) at 0.05 level with 381 degrees of freedom. The obtained t-value (18.31) was greater than the critical t-value (1.96). Hence, the result was significant. The result therefore means that there is a significant effect of business analytics on business performance.

Conclusions & Recommendations

Business intelligence and analytics is a topic of growing interest in organizations and research. In today's scenario, organizations are looking for ways to improve their productivity with BI. BIA has emerged as the proven way to quickly improve the performance of individuals and their organizations. The results revealed that there is connectivity between business intelligence and analytics and business productivity. With the help of business intelligence and analytics, employees can control their negative performance, develop an organizational culture that promotes learning and can match their goals with organizational goals. For higher productivity, it is essential to know the value of business intelligence and analytics. Because business intelligence and analytics are components of well-being, organizations can familiarize themselves with appropriate training programs to boost productivity.

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