

## EFFECT OF INTERNATIONAL BUSINESS INTELLIGENCE ON INFORMATION REQUIREMENTS OF MANUFACTURING FIRMS IN SOUTH-EAST, NIGERIA

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### ABSTRACT

With the increasing globalization of markets, fierce competition, and increasing speed of changes in market conditions and customer needs, all market participants and companies face new challenges. The rapid increase in data volumes in companies has meant that momentous and comprehensive information gathering is barely possible by manual means. Business intelligence (BI) solutions can help here by providing tools with appropriate technologies to assist with the collection, integration, storage, editing and analysis of existing data. International business intelligence is an umbrella term to describe concepts and methods to improve business decision making by using fact based support systems. The study was conducted to examine the effect of the linkage between international business intelligence and information requirements of global firms in South-East, Nigeria. The study adopted a cross-sectional research design with a sample size of 370.12 determined using the simple random sampling technique from a population of 1425 employees, data generated were analyzed through the use of Ordinary least square (OLS) at 0.05 level of significance with the aid of SPSS version 18. The study concludes that information and decision-making have a significant impact on the business intelligence of global firms in Nigeria.

**Keywords:** Business, Intelligence, Information, Requirement, Globalization.

### 1.0 INTRODUCTION

With increasing globalization of markets, fierce competition, increasing the speed with changes in market conditions and customer needs, all market participants and companies face new challenges. In the long-run, companies will be able to assert themselves, who can adapt to these conditions, who can respond flexibly and quickly to changes while at the same time keeping their costs under control (Cherunilam 2010). For this purpose, an exact knowledge of the current corporate and market situation is indispensable. To ensure this and to provide management with the information needed in their planning and decision making, sophisticated information and communication systems are used. Since the 1960's, various approaches have been developed for such systems, which have become known under many different names, such as Management Information System (MIS), Decision Support System (DSS) or Executive Information Systems (EIS). Today, the term Business Intelligence (BI) describes approaches such as collecting, storing, processing, analyzing and presenting company data (Wang, Chen and Chiu, 2005).

International Business intelligence is an umbrella term that describe “Concepts and methods to improve business decision making by using fact based support systems”. It is also “the ability of an enterprise to act effectively through the exploitation of its human and information resources” (Cherumilam 2010). Business intelligence tools are crucial to effective measurement through the use of key performance indicators and metrics across all levels of an organization in all industries.

Business intelligence tools allow companies to see both historical and current data in context, which enables better decision makers and/or prediction development depending on your business objectives (Dresner 2019). Since the purpose of business intelligence (BI) technologies include reporting, online analytical processing, analytics, data mining, complex event processing, business performance management, benchmarking, text mining, predictive analytics and prescriptive analytics. The main components of business intelligence are data warehouse, business analytics and business performance management and user interface. Data warehouse holds data obtained from internal sources as well as external sources. The internal sources include various operational systems (Wang, Chen, and Chiu, 2005 cited in Obialor, 2020). Business intelligence is a concept that usually involves the delivery and integration of relevant and useful business information in an organization. Companies use business intelligence to detect significant events and identify and monitor business trends in order to adapt quickly to their changing environment and a scenario (BARC, 2012).

## 2.0 STATEMENT OF THE PROBLEM

Previous studies indicate that most companies that have done their best in the global arena are mostly those that have realized themselves from emotional attachment to the schemes that have made their success domestically in order to see each new marketplace as a distinct entity. The key to success is a reliance on proper research and analysis. The stakes are far too high and the pace too quick to rely on guess work, intuition, or gut feelings. Entering a new market far from home without a detailed plan is akin to building a skyscraper without a possible blueprint. The study therefore is faced with the challenge to examine the effect of the linkage between International Business Intelligence and Information Requirements of Manufacturing firms in South-East, Nigeria.

### 2.1 Objectives of the Study

The objectives of the study are to examine the effect of the linkage between International Business Intelligence and Information Requirements of Manufacturing firms in South-East, Nigeria. Specifically, the study are to:

1. Ascertain the influence of information management on International business intelligence of manufacturing firms in South East, Nigeria.
2. Determine the effect of decision making on International business intelligence of manufacturing firms in South East, Nigeria.

### 2.2 Research Questions

1. What is the influence of information management on International business intelligence of manufacturing firms in South East, Nigeria?

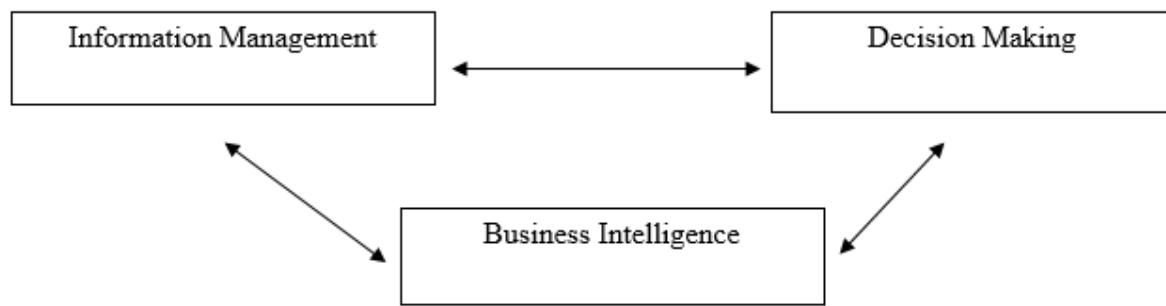
2. What is the role of decision making on International business intelligence of manufacturing firms in South East, Nigeria?

## 2.3 Research Hypotheses

1. Information management have no significant influence on International business intelligence of manufacturing firms in South East, Nigeria.
2. Decision making have no significant effect on International business intelligence of manufacturing firms in South East, Nigeria.

## 3.0 REVIEW OF RELATED LITERATURE

**Figure 1: Conceptual Model of Business Intelligence**



**Source:** The researcher 2023

## 3.1 Objectives of Business Intelligence

Terpstra (1978) cited in Cherunilam (2010) opines that in business, it is important to have sufficient, high-quality information and key performance indicators (KPIs) as the basis of decisions. The biggest problem, however, is primarily the merging of information. Many documents, spreadsheets or database hide inside companies and contain a lot of relevant information that is very difficult to merge and provide meaningful information. So, an overall holistic view is to be created, which is available as a basis for decision. Therefore, it is possible, for example, optimize business processes, minimize risks, and reduce costs, increase added value. Also, the use of Business Intelligence can become a real competitive advantage, since the necessary information is practically available at the click of a mouse (Cherunilam, 2010). Using business intelligence has three main objectives.

First, Business Intelligence is the improvement of decision basis. The decision to be taken are usually made by available information. Thus, it is obvious that with better preparation of information as well as with the consideration of a multiplicity of information, the basis of the decision is substantially improved. Information, that is, facts about certain things, is presents in large scale in today's businesses. The use of Business Intelligence makes it possible to translate them into a format that gives them an information advantage in their daily work.

Secondly, Business Intelligence is increasing the transparency of corporate actions: With the help of Business Intelligence, the employee should be enabled to take responsibility for his

area through facts and operating numbers and to be able to understand the company's decisions. Business Intelligence provides the opportunity to enhance that visibility and empowers employees to see the impacts of their area directly in the context of the enterprise as a whole.

Finally, Business Intelligence is to demonstrate the relationship between the solitary actions. Due to the complexity of business processes, decisions in many areas of companies have far-reaching consequences. The Business Intelligence solutions aim to link data from different sources and to recognize relationships that cannot be obtained from the individually considered sources of information. This is the knowledge component of Business Intelligence, which should be carried out by absolute professionals in the relevant field, as generating such information increases the transparency of the entire process within companies. (Cherunilam 2010).

### 3.2 Requirements of Business Intelligence (B1)

Miracle, and Albaum (1971) cited in Cherunilam (2010) maintained that almost every business can benefit from the use of business intelligence, but there are not always the right conditions to successfully implement business intelligence. It is not just about the technical prerequisites to be able to access the relevant data bases, but also questions of corporate culture and the way in which business intelligence is approached. Essentially, the three requirements for Business Intelligence includes the willingness to make things in question. To achieve that, Business Intelligence offers the opportunity to challenge things that have been in the business for a long time. It is possible to analyze changed structure, to create new information combinations and to simply look at changes on suspicion. If the basic structure of the information is well-structured, regarding both the technical condition and the organization of the data, this offers a wide field of confirmation (Obialor, 2022).

The willingness to think unconventionally is another requirement in which Business intelligence create entirely new insights. These must be explicitly allowed to take into account things that might at first glance be considered nonsensical or unrelated. The third requirement is Management Attention; from the first two points, Business Intelligence projects have to take one or the other way to be successful. It is very administrative for Business Intelligence projects if they are provided with the appropriate support from the responsible management, this significantly increase the acceptance and willingness to participate in such processes, (Cherunilam 2010).

### 3.3 Areas of Information Requirements

Business intelligence is essential to make all the series of strategic decision in international business, viz, international business decision, market selection decision, entry and organization decision. The broad areas of information requirement for strategic global business are the International Business Decision Related Information. Different types of information are needed to make the critical decision as to whether to go international or not. These include information about the prospects of the foreign markets, competition, other characteristics of the foreign market, domestic market prospects etc.

Similarly, in Market Selection Related Information, Information on a large number of factors is needed for evaluation and selection of the markets. There are many general factors like

political and economic stability, current stability, government policy and regulation etc. about which information about the product or industry concerned like the demand trends, government policy and regulation, competitive situation, etc.

In Product Related Information includes includes consumer tastes and preferences about the product like unit size/quantity, shape, color, product form, packaging etc; mode, time, frequencies and aspects and so on. Another area of requirement needed is Price Related Information which includes prevailing price ranges, price trends, margins, pricing practices, government policies and regulation, price elasticity of demand, role of price as a strategic marketing variable, etc.

In Promotion Related Information, the following are needed, formulating the promotion strategy, data on many aspects like media availability and effectiveness, government regulation, customs / practices of promotion in the market concerned, competitive behavior, etc. are required. Distribution Related Information is another area which includes information on factors like channel alternatives and characteristics, relative effectiveness of different channels, custom and practices of the trade, power and influence of channel members, etc. Lastly, in Competitive Related Information area, a company will also need information about the competitive environment including the extent of competitors, major competitors, relative strengths and weakness of competitors, strategies and behavior of competitors, etc. (Chamoni, and Gluchowski 2010).

### 3.4 Information and Business Intelligence

There are broadly two sources of information, viz, internal sources and external sources. Internal sources include sales and cost records, accumulated knowledge of the company personnel and any other data available with the company (Kemper, Mehanna and Unger, 2004).

Business intelligence (BI) has a positive impact on an organization's people as it does on performance, projects, and decision. Business Intelligence is used to turn data into actionable information for leadership, management, organization and decision making. The following are some of the ways organizations are learning to use business intelligence; budgeting and financial planning and forecasting, tracking the performance of marketing campaigns, optimizing processes and operational performance, improving delivery and supply chain effectiveness, web and e-commerce data analytics, customer relationship management, risk analysis, strategic value drive analysis (Obialor, 2021).

Organizational Benefits of Implementing Business Intelligence includes; quick answers to critical business questions, align activities with strategy, reduce time spent on data entry and manipulation, gain in-depth real time insights into customers, identify and analyze areas to cut costs and for budget allocations, benchmark data against competitors and historical data for continuous improvements, and boost internal productivity by spending time on what is important (Chamoni, and Gluchowski 2010).

When there is need to integrate data from multiply business applications or data sources, when there is lack of visibility into the company's operations, events, news, finances and other areas, when the need to access relevant business data quickly and efficiently arise, when there is increase in volume of users requiring and accessing information and more end-users requiring

analytical capabilities, when rapid company growth exist or a recent or pending merger and acquisition, introduction of new products., and upgrades within the IT environment. (Xu and Kaye, 2007).

## 4.0 METHODOLOGY

The study adopted a cross sectional research design where data were collected only once. The population of the study was made up of 1425 employees. The sample size of 310 was determined using the simple random sampling technique. Data generated were analyzed using the Ordinary least square regression analysis (OLS) with the aid of SPSS version 18.

	Description	No of Respondents			
		Yes	%	No	%
1	Does information requirements influences the business Intelligence of global firms?	256	83	54	17
2	Does the role of decision making on business Intelligence affect global firms operations.	247	80	63	20
3	Does Information Management have impact on business intelligence of global firms operations?	240	77	70	23
4	Does Information Management lead to effective business Intelligence?	254	82	56	18
5	Does effective and efficient decision making lead to better business Intelligence.	256	83	54	17
6	Does innovation in Information Management enhances business Intelligence of foreign markets.	246	79	64	21

**Source:** Field data 2023

## 5.0 RESULTS

In question 1, the result showed that 256 responses representing 83% of the total respondents for the study said yes or assert that information requirements influence the business intelligence of global firms in Nigeria while 54 responses representing 17% of the total respondents for the study said No that information requirements influence the business intelligence of global firms in Nigeria. From the findings, it can be deduced that information requirements influence the business intelligence of global firms in Nigeria.

In question 2, it is clear that 247 responses representing 80% of the total respondents for the study said Yes that the role of decision-making in business intelligence affects global firm's operations in Nigeria, while 63 responses representing 20% of the total respondents for the study



said No, that the role of decision making on business intelligence affects global firm's operations in Nigeria.

In question 3, it is clear that 240 responses representing 77% of the total respondents from the study said Yes that information management have an impact on business intelligence of global firm's operations, while 70 responses representing only 23% of the total respondents said No that information management have an impact on business intelligence of global firm's operations in Nigeria.

In question 4, the result shows that 254 responses representing 82% of the total respondents for the study assert that information management lead to effective business intelligence of global firms in Nigeria, while 56 responses representing only 18% of the respondents of the study said no that information management lead to effective business intelligence of global firms in Nigeria.

In question 5, the finding shows that 256 responses representing 83% of the total respondents for the study said that effective and efficient decision-making leads to better business intelligence of global firms in Nigeria, while 54 responses representing only 17% of the total respondents for the study said no that effective and efficient decision making leads to better business intelligence. Therefore, it can be affirmed that effective and efficient decision-making lead to better business intelligence of global firms in Nigeria.

Finally, in question 6, results showed that 246 responses representing 79% of the total respondents of the study said yes that innovation in information management enhances business intelligence of foreign markets, while 64 responses representing only 21% of the total respondents for the study said no that innovation in information management enhances business intelligence of foreign markets. From the findings, it can be affirmed from the majority view that innovation in information management enhances business intelligence of foreign markets in Nigeria.

## Test of Hypotheses

Decision Rule: Reject  $H_0$ :  $t_{cal} > t_{obs}$  at 0.05 confidence level

Accept  $H_0$ :  $t_{cal} < t_{obs}$

### Hypothesis .1

$H_{01}$ : Information management have no significant influence on business intelligence of global firms in South East Nigeria.

$Y = f(x)$ ..... Model 1

$Y = b_0 + b_1x + u_1$

Regression result of the relationship between information management and business intelligence.

Dependent variable: Y

Method : Ordinary least square (OLS)

Sample : 1-10

No of observation: 10

Variable	Coefficient	Std. Error	t- Statistic
<b>Prob.</b>			
C	12.081	5.447	2.218
0.057			
X	2.504	0.803	3.117
0.014			

**Source:** SPSS, 18

$r^2 = 0.548$

$r = 0.741$

Durbin Watson = 2.96

The coefficient of the constant term is 12.08. The associated sign is positive, implying at zero influence of the independent variable, Business intelligence (Y) will be influenced positively by 12% approximately. The regression coefficient of information management (x) carries a positive sign and the t-value (3.117) is statistically significant at 5%. The significance is ascertained as the 0.05 level of significance is greater than the p-value of the regression coefficient of information management (x) (0.014). The computed coefficient of determination ( $r^2 = 0.548$ ) shows that 54.8% of the total influence of business intelligence (y) is accounted for, by the independent variable - information management, while 45.2% of the total impact in Y is attributed to the influence of other factors that are not included in the regression function. However, the computed correlation coefficient  $r$  is 0.741, implying that there is a strong positive relationship between information management ‘X’ and business intelligence ‘Y’. The influence of Durbin Watson (DW) is 2.96, at 5% level of significance, and  $K1 = 1$  and  $N = 10$  degree of freedom, the tabulated lower (dL) and upper units of Durbin Watson statistics (2.96) is greater than the upper limit (1.320), thus there is no evidence of autocorrelation in the model.

**Hypothesis 2**

**H02:** Decision-making have no significant effect on the business intelligence of global firms in South East, Nigeria.

Regression result of decision making on the effect of business intelligence of global firms in South East, Nigeria.

**Table.2**

Y= f(x)..... Model 2



$$Y = b_0 + b_1x + u_1$$

Dependent variable: Y

Method : Ordinary least square (OLS)

Sample : 1-10

No of observations : 10

Variable	Coefficient	Std Error t	t-statistic	Prob.
C	7.188	4.008	1.793	0.111
X	3.252	0.595	5.467	0.001

Source: SPSS, version 18

$$r^2 = 0.789$$

$$r = 0.888$$

$$\text{Durbin Watson} = 1.65$$

The coefficient of the constant term is 7.188. The associated sign is positive, implying at zero effect of the independent variable, business intelligence (Y) will increase effect by 7% approximately. The regression coefficient of decision-making (x) carries a positive sign and the value t-value (5.467) is statistically significant at 5%. The significance is ascertained as the 5% level of significance is greater than the p-value of the regression coefficient of decision making (x) (0.001), the computed coefficient of determination ( $r^2 = 0.789$ ) shows that 78.9% of the total variation in business intelligence (y) is accounted for, by the independent variable - decision making, while 21.1% of the total variation in Y is attributed to the influence of other factors that are not included in the regression function. However, the computed correlation coefficient (r) is 0.888, implying that there is a strong positive relationship between decision-making (X) and business intelligence (Y). The value of Durbin Watson (DW) is 1.65. Using 5% level of significance and  $K_1 = 1$  and  $N = 10$  degrees of freedom, the tabulated lower (dL) and upper limits (1.320), there is no evidence of autocorrelation in the model.

## 6.0 DISCUSSION OF FINDINGS

It is found that the t-calculated value of X in the first model is 3.117 while the t-tabulated value is 2.306. Since the t-calculated (3.117) is greater than the t-tabulated value (2.306),  $H_0$  is rejected and the study concludes that Information management has a significant effect on the Business Intelligence of global firms in South East, Nigeria.

Using a two-tailed test, the t-calculated value in the second model is 2.306, therefore,  $H_0$  is rejected and the study concludes that decision-making has a significant effect on the Business Intelligence of global firms in Nigeria.

## 7.0 CONCLUSION

International business intelligence refers to the system by which information required for international business decision-making is collected, analyzed, and stored so that the right information is available at the right time to the right people. Sufficient and reliable information is a prerequisite for proper decision-making, be it domestic or global business. The broad areas of information requirement include information about the prospects of the foreign markets, competition, other characteristics of the foreign markets, government policies, information needed for designing the marketing mix, etc.

There are two broad sources of information, the internal and external sources. Business intelligence has a positive impact on an organization's people as it does on performance, projects, and decisions. Organizational benefits of implementing Business intelligence, when companies should need business intelligence, objectives of business intelligence, requirements of business intelligence, etc, were all discussed. The two hypotheses of the study were tested using Pearson product-moment correlation coefficient ( $r$ ) at 0.05 level of significance with the aid of SPSS version 18. The study, however, concluded that information and decision-making have a significant impact and role on the business intelligence of global firms in Nigeria.

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