

Effect of Intellectual Capital for Competitive Advantage in Brewery Industry of Nigeria Breweries Plc, Ama 9th Mile Ngwo Enugu

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Abstract: *The research work examined effect of intellectual Capital in Industry of Nigeria Breweries Plc, Ama. The objectives of the study included to: ascertain the effect of human capital on quality of the products of the brewery industry; determine the extent structural capital affects efficiency; identify the effect of customer capital on responsiveness of the brewery industry and assess the effect of innovational capital on the creativity of the brewery industry. The research method adopted by the study was the survey research method. The sources of data used were the primary and secondary sources of data. The population of the study was 308 while the sample size of 174 was determined using the Taro Yamane's formula. The major instrument of data collection was the questionnaire. The data collected were presented in tables using frequencies and percentages and analysed using the five point Likert scale. The hypotheses were tested using the F-ANOVA distribution formula. The findings included that human capital had a positive effect on quality of products. ($F(141) = 2368.32, p = 0.05$); structural capital positively affected the efficiency of the brewery Industry. ($F(141) = 5235.33, p = 0.05$). The study concluded that intellectual capital had a significant and positive effect in the brewery industry and it was recommended that management of industrial firms should protect their human capital as an aspect of intellectual capital so as to enhance the quality of products through sending the employees on training and retraining courses, management of industrial firms should arrange responsibilities and accountabilities that define the position and relationship between the members of the organization, management of industrial firms should maintain loyalty of valuable customers by understanding their needs and meeting them consistently and management of industrial firms should develop competence and ability to introduce new technology, products or service to the market by adopting innovation principles.*

Keywords: Intellectual Capital, Competitive Advantage

1.1 Background of the Study

The first mention of the notion of intellectual capital in the 20th century could be found In Frederick Taylor's book published in 1911, in which he wrote about knowledge, experience and skills of employees. Intellectual capital, as a term, was originally associated with Maching up in 1962 who coined it in order to emphasize the importance of knowledge for the development of enterprises and growth of national economies. In the last few decades, intangible assets such as knowledge, patents and innovations have been identified as key sources of value creation and technological progress. These intangibles represent a main concern for the managers of modern knowledge enterprises and their stakeholders (Garcia-Ayuso, 2013). In the knowledge economy, in order to be successful in the market, an enterprise has to be flexible and capable of adapting its resources and products according to the requirements of national and regional markets.

Inga (2016) posits that intellectual capital can be defined as the set of knowledge assets held by an organization, which significantly drives organizational innovation and value creation processes. The intensity of global competition has led to significant changes in the way manufacturing companies conduct their businesses. Organizations confront different political, economical, social and technological changes and challenges, which create competitive challenges to which they need to pay more attention if they are to be successful in their market place regardless of their size, industry or location (Ulrich, 2015). These continuous changes and challenges justify the need for organizations to focus on their competitive advantages. In today's hypercompetitive world,. The adage that "knowledge is power" has a growing importance than ever before (Siegel, 2014). Organizations' knowledge- based resources are becoming increasingly pivotal to their successful operation in parallel with the development of the global economy towards being more information-intensive. This implies that what an organization "knows" is often more critical than what it owns.

In the 21st century, organizations encounter a more fierce and dynamic context that is described by the combination of globalization, advanced technology, shortened product-life cycles, and network partnerships. Nowadays, under the new world economy, the prevailing managerial practices or techniques with conventional strategic orientation such as cost cutting, benchmarking,

reengineering and so forth are regarded inefficient and inadequate to reap competitive advantage (Teece, 2017). This posed an important question - what do firms do to survive?

This underlines the role of the residuals, which are intangible resources. Such stress on organizations' knowledge, either in term of resources embedded within an organization or those relied heavily upon its external networks, has driven entities into a public consciousness of the notion of "intellectual capital". Intellectual capital encompasses the knowledge derived from the company's manpower, from the competencies of the firm, and from the connections and interactions between an organization and its external parties such as clients, partners, and suppliers. Intellectual capital can also be defined as the value of organizational experience which is embedded in an organization's process, course of actions, systems, and corporate structures (Burnaby, 2014).

1.2 Statement of the Problem

Organizations at all levels are expected to seriously consider intellectual capital. This is because intellectual capital has become the main element in the process of innovation change and creativity thus creating a competitive advantage for the organizations. Furthermore, intellectual capital is a firm's only appreciable assets. Most other assets (building, plant, equipment, machinery and so on) begin to depreciate the day they are acquired. Unfortunately, many firms in the Brewery Industry pay more attention to the tangible assets instead of the intangible assets like intellectual capital. This has affected the quality of their products, the organizational responsiveness, creativity and efficiency which are very important for determining the competitive advantage of such organizations. Some intangible assets are difficult to measure for example intellectual capital. There is a total lack of a robust system in the Brewery Industry to measure intellectual capital. The major obstacle to achieving a more thorough comprehension can be directly attributable to the notion that knowledge resources are intrinsically intangible. Due to the complexity in recognizing such intangible resources clearly and explicitly, there is an insufficient insight on how various kinds of intangible resources like intellectual capital, are managed by the organization. In the absence of such insight, nevertheless, it becomes impossible to accurately understand the procedures through which organizations expand their distinct knowledge and consequently the organization would largely remain a knowledge-based "black box". Many firms in the Brewery industry lack this knowledge about intellectual capital and this has affected their competitive advantage. It is based on this anomaly that this study examined effect of intellectual capital for competitive advantage in the Brewery Industry.

1.3 Objectives of the Study

The broad of objective of the study is to examine effects of intellectual capital for competitive advantage in the Brewery Industry. However, the specific objectives included to:

1. Ascertain the effect of human capital on quality of the products of the brewery industry.
2. Determine the extent structural capital affects the efficiency of the brewery industry.

1.4 Research Questions

Based on the objectives of the study, the following research questions were raised:

1. What is the effect of human capital on quality of the products of the brewery industry?
2. To what extent does structural capital affects the efficiency of the brewery industry?

1.5 Research Hypotheses

Based on the research questions, the following alternate hypotheses were formulated:

- i. Human capital has a positive effect on quality of the products of the brewery industry.
- ii. Structural capital positively affects the efficiency of the brewery industry to a large extent.

2.1 Conceptual Framework

2.2.1 Concept of Intellectual Capital

There are a lot of definitions of intellectual capital. Lerro (2014) opines that intellectual capital can be defined as non-monetary and non-physical resources that are fully or partly controlled by the firm and that contribute to the firm's value creation. Furthermore, Inga (2016) asserts that intellectual capital can be viewed as the set of knowledge assets held by an organization, which significantly drives organizational innovation and value creation processes. Moreover, Mouritsen (2014) posits that intellectual capital is a firm's assets which include the firm's human capital, information and communication technologies, business procedures, and intangible assets that can be converted into material and immaterial value.

Intellectual capital has been defined as the difference between a firm's market value and the cost of replacing its assets. It is those things that we normally cannot put a price tag on, such as expertise, knowledge and a firm's organizational learning ability (Bontis, 2013). Market value equals book value plus intellectual capital, with book value usually only the tip of the iceberg of wealth. Intellectual capital encompasses much more than patents, copyrights and other forms of intellectual property. It is the sum and synergy of a company's knowledge, experience, relationships, processes, discoveries, innovations, market presence and community

influence (Williams, 2015). The most widely used definition of intellectual capital is “knowledge that is of value to an organization.” Its main elements are human capital, structural capital, and customer capital. Intangible assets are increasingly becoming important towards determining organizational success. According to Bontis (2014), this success is credited with having coined the term ‘Intellectual Capital’ (intellectual capital) to refer to these assets and used it to emphasize the importance of general knowledge as essential to growth and development.

Successful and competitive organizations tend to be those that are continually concerned and aware of the importance of intellectual capital. Intellectual capital is the collective knowledge of individuals in organizations and most significantly improved the organizational competitive position by adding value to the customers. This knowledge can be used to produce wealth, increase the output of physical assets, enhance the value of other type of capital, and gain sustainable competitive advantage. Roos, (2014), asserts that there are four dimensions of intellectual capital: human capital, organizational capital, renewal capital, and relational capital. Organizational or structural capital is everything that remains in the company after employees go home. Human capital is about generating intellectuality through employees’ attitude, competence and their intellectual agility. Attitude is the employee’s behavioural component. Competence covers skills and education, while intellectual agility is supporting employees with ability to change practices and encourage them to be creative and innovative.

Stewart (2014), states that intellectual capital as the intellectual materials include knowledge, intellectual property, information and experience that can be utilized to create wealth. There are four components for intellectual capital according to Stewart: structural capital-it is about IT, where it can be embedded; human capital is about anything related to employees in terms of skills, knowledge and experience. As employees the most important assets in the organization; intellectual property includes trademarks, plans and all rights; and customer capital — is about all the market information used to capture and retain customers.

2.1.2 Components of intellectual capital

There are many components of intellectual capital. They include: human capital, structural capital and external (customer) capital. This classification is admitted in general.

1. Human Capital

Human capital is defined as the knowledge, skills, experience, intuition and attitudes of the workforce (Bassi, 2013). Intellectual capital can be increased by increasing the capacity of each worker. Human capital can also be defined as the firm’s collective capability to extract the best solutions from the knowledge of its people. It is important because it is a source of innovation and strategic renewal, whether it is from brainstorming in a research lab, day dreaming at the office, throwing out old files, reengineering new processes, improving personal skills or developing new sales leads (Tasell, 2014). Individual competence is important for organizations. This is people’s capacity to act in various situations. It includes skill, education, experience, values and social skills. People create knowledge, new ideas, and new products, and they establish relationships that make processes truly work. Unfortunately, when people leave, they take along their knowledge, including internal, external, formal, and informal relationships (Brenner, 2016). Intellectual capital (the commitment and competence of workers) is embedded in how each employee thinks about and does work and in how an organization creates policies and systems to get work done. It has become a critical issue for six reasons (Ulrich, 2017):

First, intellectual capital is a firm’s only appreciable asset. Most other assets (building, plant, equipment, machinery, and so on) begin to depreciate the day they are acquired. Intellectual capital must grow if a firm is to prosper. A manager’s job is to make knowledge productive, to turn intellectual capital into customer value.

Secondly, knowledge work is increasing, not decreasing. Service generally comes from relationships founded on the competence and commitment of individuals.

Thirdly, employees with the most intellectual capital have essentially become volunteers, because the best employees are likely to find work opportunities in a number of firms. This does not mean that employees work for free, but that they have choices about where they work and, therefore, essentially volunteer in a particular firm. Volunteers are committed because of their emotional bond to a firm; they are less interested in economic return than in the meaning of their work. Employees with this mind-set can easily leave for another firm.

Fourthly, many managers ignore or depreciate intellectual capital. In the aftermath of downsizing, increased global competition, customers’ higher requirements, fewer management layers, increased obligations, and pressures exacted from almost every other modern management practice, employees’ work lives have not always changed for the better.

Fifthly, employees with the most intellectual capital are often the least appreciated. Some studies have correlated front-line employees’ attitudes to a firm with customers’ attitudes to the same firm. Sixthly, current investments in intellectual capital are mis-focused. Education and training professionals understand how people learn, share knowledge, and work together.

2. Structural Capital

This consists of a wide range of patents, concepts, models, and computer and administrative systems. These are created by the employees and are thus generally 'owned' by the organization, and adhere to it. Sometimes they can be acquired from elsewhere. Decisions to develop or invest in such assets can be made with some degree of confidence, because the work is done in-house, or bought from outside. Also, the informal organization, the internal networks, the 'culture' or the 'spirit', belongs to the internal structure. Structural capital is the firm's organizational capabilities to meet market requirements. It involves the organization's routines and structures that support employees' quests for optimum intellectual performance and, therefore, overall business performance.

The structural capital of a firm consists of four elements:

- a. **Systems:** The way in which an organization's processes (information, communication, decision—making) and outputs (products/services and capital) proceed.
- b. **Structure:** The arrangement of responsibilities and accountabilities that defines the position of and relationship between members of an organization.
- c. **Strategy:** The goals of the organization and the ways it seeks to achieve them.
- d. **Culture:** The sum of individual opinions, shared mindsets, values, and norms within the organization.

3. External Capital

External capital is also named relational capital and customer capital. External-relational capital refers to the organization's relationships or network of associates and their satisfaction with and loyalty to the company. It includes knowledge of market channels, customer and supplier relationships, industry associations and a sound understanding of the impacts of government public policy. Frustrated managers often do not recognize that they can tap into a wealth of knowledge from their own clients and suppliers. Understanding better than anyone else what customers want in a product or a service, is what makes someone a business leader as opposed to a follower. Customer and supplier loyalty, target marketing, longevity of relationships and satisfaction are all measurable elements of this form of intellectual capital. Coca-Cola, for instance, is the world's most valuable brand name, worth about US\$39 billion. But customer capital will show up in complaint letters, renewal rates, cross selling, referrals and the speed with which phone calls are returned (Tsai, 2014). External capital, defines an organization's vital, external relationships.

4. Social Capital

Social capital is the sum of the actual and potential knowledge that are embedded within the networks of mutual acquaintance and recognition among employees (Yound, 2015). It is important to differentiate between social capital and structural capital as the latter includes formal procedures or managerial routines for gathering and storing individual knowledge. In contrast, in the case of social capital, informal and flexible interactions among organizational members could treat as another procedure to generate and share knowledge. Social capital can serve as a facilitator in transmitting manpower's uncodifiable knowledge, while structural capital is not capable of transferring organizational members' tacit knowledge to a firm's repository completely. Stewart (2015) opines that some kinds of tacit knowledge disseminate just in the case that individuals meet, talk, and interact. Accordingly, companies have to form a social activity to promote learning, in which tacit knowledge of people is talked and disseminated for more effective utilization in the future (Ehin, 2016). This social activity seems to have a propensity to appear over time and develops into corporate cultures and norms.

2.1.3 Managing Intellectual Capital

The current debate on intellectual capital is set in the context of a changing model of management and organizational structures. It is said that organizations are moving from command and control to delegation, empowerment and coaching. Through this, everyone in the organization has an opportunity to shape the way it works. It is the role of management to harness and maximize that potential. It's clear that managers who want to grow their company's intellectual capital must be able to expand intelligence, encourage innovation and exercise integrity. The challenge for managers is to develop the three core competencies of intellectual capital company wide. That's where dialogue comes in. Knowledge is created and transferred through conversation, and leaders must master the art of fostering a dialogue among team members. Facilitating and training teams on knowledge creation and innovation, conduct team focused workshops to apply innovation skills to specific business challenges regarding revenue generation, quality, etc. Coaching specific project teams and sponsors on how to cultivate a better climate for innovation. Multiple-way conversations will help people address the top issues that surface during the innovation process. If managers manage knowledge effectively, their organization will enhance their intellectual capital.

2.1.4 Intellectual Capital and Performance Measurement System

Global markets have experienced a transition from capital-intensive industries into knowledge-based industries, possessing higher propensities to move towards intangible resources. Traditional Performance Management System (PMS) with a limited set of measures are not any more applicable to measuring the performance of such firms, which possess high intangible resources. The companies such as Microsoft are built on a foundation of the long-run value embedded in their IC resources and their continuing

innovativeness (Barsky & Bremser, 2014). The benefits derive from IC are difficult to measure, such as learning, innovation, customer satisfaction, R&D, and market knowledge.

2.1.5 Concept of Competitive Advantage

Lawal (2014), posits that in business, a competitive advantage is the attribute that allows an organization to outperform its competitors. A competitive advantage may include access to natural resources, such as high grade ores or a low-cost power source, highly skilled labor, geographic location, high entry barriers, and access to new technology. Competitive advantage is the leverage that a business has over its competitors. This can be gained by offering clients better and greater value. Advertising products or services with lower prices or higher quality interests consumers. Target markets recognize these unique products or services. The study of this advantage has attracted profound research interest due to contemporary issues regarding superior performance levels of firms in today's competitive market. "A firm is said to have a competitive advantage when it is implementing a value creating strategy not simultaneously being implemented by any current or potential player". The quotes above signify competitive advantage as the ability to stay ahead of present or potential competition. Also, it provides the understanding that resources held by a firm and the business strategy will have a profound impact on generating competitive advantage. Hence, viable business strategy may not be adequate unless it possesses control over unique resources that have the ability to create such a relatively unique advantage.

Competitive advantage is a critical strategic organizational objective which any organization seeks to achieve and maintain. To confront environmental challenges and changes, organizations should create and sustain its competitive advantage from any unique specific organizational sources. Porter & Kramer (2016) state that in today's competitive markets competitive advantage is at the heart of a firm's performance. In addition, they argue that competitive advantage grows fundamentally out of value a firm's ability to create for its buyers that exceeds the firm's cost of creating it. In order to gain and sustain competitive advantage, organizations must create rare, valuable and inimitable resources through possessing the right capabilities (Barney, 2015).

2.1.6 Competitive Advantage Strategies and Sources

The systematic way of building competitive advantage requires consistency among organizational primary activities (human resources, technological resources, information resources and financial resource), and the way they are interacted. In the same context, Hill & Jones (2014) state that competitive advantage can be gained by value leveraging as well as cost leveraging. Higher degree of value leveraging represents higher customer value again, higher degree of cost leveraging tends to lower cost structure. The combination of value and cost leveraging opportunities creates higher price flexibility and hence greater competitive advantage. Competitive advantage is built from different generic strategies such as: cost leadership, differentiation and focus strategies. Within the cost leadership strategy, an organization seeks to secure a cost advantage among its competitors by reducing its overall costs in order to be able to provide its products and services within a competitive lower price and relative to products and services, quality received by the customer and, at the sometime, achieve a high profit margin (Porter & Kramer, 2016). This strategy requires different managerial practices; using new technology to increase the efficiency and accuracy of doing work; devising more efficient work methods so that an organization could eliminate the waste of time, also increasing the workers' competencies and maintaining competitive workforce (Wheelen & Hunger, 2013).

2.1.7 Competitive Advantage Dimensions:

Many studies through the literature about competitive advantage have addressed extensively the competitive dimensions and priorities which can help firms gain and sustain competitive advantage. The following are a brief discussion on such dimensions:

- a. Quality: Quality is one of the crucial competitive factors in the marketplace. These dimensions match the customer perspective. Accordingly, it can be argued that quality is one of the major sources of competitive advantage by meeting customer requirements. Many studies have linked quality to competitive strategies.
- b. Cost: Cost is the ability to manage efficiently all the operations involved, including all the related aspect such as overhead cost and added value cost without hearting the quality of the product or service. This idea is behind the logic of linking the cost leadership strategy to CA (Porter, 2014).
- c. Flexibility: Literature classified flexibility by using different dimensions classifies into two forms: action flexibility and state flexibility. Action flexibility is the capacity for taking new action to meet new circumstances, while state flexibility is the capacity to continue functioning effectively despite changes in the environment. Das, (2013), opines that flexibility can be classified into three categories: volume flexibility (the ability of a manufacturing system to vary total production volume economically); Market flexibility (the ability to adapt to a changing market environment easily); and new product flexibility (the ability of a manufacturing system to introduce and manufacture new parts and products). Flexibility also includes product flexibility which is defined as the company's ability to change the design of the product according to the changes in the customer's needs and tastes. The second flexibility is about the respond to the volume of demand.

2.1.8 Intellectual Capital and Competitive Advantage

Sustainable competitive advantage is dependent on building and exploiting distinctive competencies. Therefore, resources which are distinctive, difficult to transfer and hard to be imitated by competitors are required. Intellectual capital is important to all types of organizations because it helps to create changes in people's behavior and values. Intellectual capital brings with it a whole set of new values about what is good and what is bad management. Values embedded in intellectual capital are useful for organizations to gain a good competitive position in the market. Intellectual capital is a key driver of innovation and competitive advantage in today's knowledge based economy. Edvinsson and Malone (2013), opines that intellectual capital is the sum of everything in the company that gives it a competitive advantage in the marketplace. According to the resource-based view, organization gained sustainable competitive advantage by resources that are inimitable, rare, valuable and non substitutable (Barney, 2015). Welbourne (2018), argues that what brings the real values for organization are not the people you hire, but the relationships those people have with each other and with the key factors of the external environment. Accordingly, human and relational capitals are essentially related because the relationship that contributes to firm competitiveness raised, created and sustained by individuals within the organization. However, the importance of intellectual capital elements (human, relational and structural) is different in influencing competitive position and wealth of the organization (Stewart, 2015). There were enormous empirical studies in literature that examined the different contribution of individual intellectual capital elements to firm competitiveness and performance in different industries. For example, Higher brand value is expected to strengthen long-term organizational performance, including productivity, profitability and innovation. From the above point of views, it can be concluded that despite various and diverse definitions, it is important that intellectual capital must be managed well in order to get the best out of its element (human, relational and structural) to produce products and services in the competitive manner.

2.1.9 Extent Structural Capital Affects the Efficiency of the Brewery Industry

Bello (2019), carried out a study on the extent structural capital affects the efficiency of the brewery industry. The study was carried out in Ogun State with population of 165 workers from two brewery firms, using the survey method of research and questionnaire as the major instrument of data collection. It was found that structural capital affects the efficiency of the brewery industry to a large extent. Moreover, Walker (2017) carried out a study in Florida, in the United States of America. In the study, a population of 280 employees was studied from two brewery companies. The Regression method was used in the analysis while the F-ANOVA was used to test the hypotheses. In the management journal it was found that structural capital affects the efficiency of the brewery industry to a large extent.

2.2 Theoretical Framework

2.2.1 The Knowledge-based View of the Firm

It is widely acknowledged that the knowledge-based view (KBV) of the firm is a recent addition to the KBV (Balogun & Jenkins, 2003; Choo & Bontis, 2002; De Carolis, 2002; Grant, 1996; Hoskisson, Hitt, Wan, & Yiu, 1999; Huizing & Bouman, 2002; Roos, 2009; Sveiby, 2001). KBV posits that knowledge is imperative to strategic resource, and acts as an extension to the RV of the firm (De Carolis, 2002). KBV's extension to RBV is expected to be enough in the context of the current economic context (Drucker, 1993; Guthrie, 2001; Mathews, 2003; Stewart & Ruckdeschel, 1998). In the context of this work, intangible assets are regarded as highly valued resources (Bontis, Dragonetti, Jacobsen, & Roos, 2009; Petrick, Scherer, Brodzinski, Quinn, & Ainina, 1999).

Assuming that knowledge is regarded as a resource, it theoretically connects KBV to the KBV (Ariely, 2003). The KBV residing in the firm is a current addition to the KBV, which is made possible by inherent capabilities of a firm (Malerba & 108). KBV of the firm acts as an extension of RBV, as it regards organizations as heterogeneous bodies that are filled with knowledge (Hoskisson, 1999). Organizations acting on resource base are increasingly being filled with knowledge based assets (Roos, 2009; Stewart, 1997; Sveiby, 2001 b; Marr, 2004). RBV suggests that the unique individuality of intangible resources (especially knowledge) refines the emphasis of the research. The resource of knowledge is imperative in order to confirm the fact that interactions between the firm's resources. Of all the theories the researcher adopted, the study was anchored on the resource based view of the firm. This is because the theory assumes that a company's sustainable advantage in a given market is determined by the organizations resources, including the intangible assets.

2.3 Empirical Studies

2.3.1 Effect of Human Capital on Quality of Products

In a study conducted by Ibrahim (2017), in Lagos State on effect of human capital on quality of products of manufacturing firms, a population of 248 employees was studied using the survey method of research and the questionnaire as the major instrument of data collection. In the study the Parson Product Moment Correlation Coefficient was used in the analysis and it was found that human capital has a positive effect on quality of the products of the firms. Furthermore, Okoye (2018) carried out a study in Enugu State on effect of human capital on quality of products. In the study a population of 250 employees was studied using the survey method of research while the questionnaire was the major instrument of data collection. The Chi-square statistical technique was used in the analysis and it was found that human capital has a positive effect on the products of manufacturing firms in Nigeria.

3.1 Research Design

This study made use of the survey research method. Survey was adopted because the problem under study demanded the technique of questionnaire as the principal means of collecting data and survey is cost effective both for large and small population. Also, Survey was adopted in this research because the method is considered adequate and most appropriate in that it helped the researcher to describe, examine, record, analyze and interpret the variable that exists in the study to draw conclusions. A total of 308 employees of Nigerian Breweries Plc Ama served as the target population. The sample size was 174 using the Kumar's formula.

4.1: Data Relating to Research Questions

4.1.1 Research Question One: What is the effect of human capital on quality of the products of the brewery industry?

Table 4.1.1: Distribution of respondents on whether the human capital of their organization has a positive effect on quality of their products

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid SA	58	41.1	41.1	41.1
A	47	33.3	33.3	74.4
UD	16	11.4	11.4	85.8
DA	15	10.6	10.6	96.4
SD	5	3.6	3.6	100
Total	141	100.0	100.0	

Table 4.1.1 shows that 58 respondents representing 41.1 percent of the total respondents strongly agree that the human capital of their organization has a positive effect on quality of their products, 47 respondents representing 33.3 percent agree, 16 respondents representing 11.4 percent were undecided, 15 respondents representing 10.6 percent disagree while 5 respondents representing 3.6 percent strongly disagree.

Table 4.9 shows the distribution of respondents on whether their companies develop clear strategies and procedures for managing intellectual capital

4.1.2 Research Question Two: To what extent does structural capital affects the efficiency of the brewery industry?

Table 4.1.2: Distribution of respondents on whether the structural capital of their organization positively affects their efficiency to a large extent

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid SA	63	44.7	44.7	44.7
A	44	31.2	31.2	75.9
UD	11	7.8	7.8	83.7
DA	14	9.9	9.9	93.6
SD	9	6.4	6.4	100
Total	141	100.0	100.0	

Table 4.1.2 shows that 63 respondents representing 44.7 percent of the total respondents strongly agree that the structural capital of their organization positively affects their efficiency to a large extent, 44 respondents representing 31.2 percent agree, 11 respondents representing 7.8 percent were undecided, 14 respondents representing 9.9 percent disagree while 9 respondents representing 6.4 percent strongly disagree. It shows the distribution of respondents on whether their company is keen on maintaining the loyalty of valuable customers by understanding their needs and meeting them consistently.

4.4 Test of Hypotheses

4.4.1 Test of Hypotheses One

The research hypothesis one sought to ascertain the effect of human capital on quality of the products of Nigeria breweries plc. The test hypothesis is re-stated in null form as:

H_0 : Human capital does not have a positive effect on quality of the products of Nigeria breweries Plc.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.941(a)	.885	.885	.37687

a Predictors: (Constant)

ANOVA(b)

Model	Sum of Squares	Df	Mean square	F	Sig.
1 Regression	478.418	1	478.418	2368.322	.000(a)
Residual	62.069	139	.142		
Total	540.487	140			

Dependent Variable: Quality of Products

Independent Variable: Human Capital

Coefficient of Multiple Determinants { r^2 }

The R^2 {R-Squared} which measures the overall goodness of fit of the entire regression, shows the value as .885 and adjusted to .885. This means that R^2 accounts for 88.5 percent approximately 89 percent. This indicates that the independent variables account for about 89 percent of the variation in the dependent variable. Which shows goodness of fit? From the result, F-calculated (2368.322) is greater than the F-tabulated (2.7858), that is $F_{cal} > F_{tab}$. Hence, we reject the null hypothesis (H_0) and accept Alternate hypothesis which means that the overall estimate has a good fit which also implies that our independent variables are simultaneously significant. We now conclude from the analysis that human capital has a positive effect on quality of the products of Nigeria Breweries Plc.

Hypothesis Two

The research hypothesis two sought to ascertain the extent of the effect of structural capital on efficiency of Nigeria breweries Plc. The test hypothesis is re-stated in null form as:

H_0 : Structural capital does not positive affects the efficiency of Nigeria Breweries Plc, Ama.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.971(a)	.943	.943	.27734

a Predictors: (Constant)

ANOVA(b)

Model	Sum of Squares	Df	Mean square	F	Sig.
1 Regression	556.541	1	556.541	5235.331	.000(a)
Residual	33.614	139	.077		
Total	590.155	140			

Dependent Variable: Efficiency

Independent Variable: Structural Capital

Coefficient of Multiple Determinants { r^2 }

The R^2 {R-Squared} which measures the overall goodness of fit of the entire regression, shows the value as .943 and adjusted to .943. This means that R^2 accounts for 94.3 percent approximately 89 percent. This indicates that the independent variables accounts for about 89 percent of the variation in the dependent variable. Which shows goodness of fit? From the result, F-calculated (5235.331) is greater than the F-tabulated (2.7858), that is $F_{cal} > F_{tab}$. Hence, we reject the null hypothesis (H_0) and accept Alternate hypothesis which means that the overall estimate had a good fit which also implies that the independent variables are simultaneously significant. We now conclude from the analysis that structural capital positive affects the efficiency of Nigeria Breweries Plc to a large extent.

4.5 Discussion of Findings**4.5.1 Effect of human capital on quality of products**

Human capital has a positive effect on quality of products. The statement was confirmed to be true in the comparison of the study's findings with the empirical review. The evidence is shown in the calculated value (2368.322) which is greater than the critical value (2.7858). In the empirical review, Ibrahim (2014) carried out a research on the effect of human capital on quality of products. In the study, a population of 248 employees was adopted, unlike in the study carried out by the researcher where a population of 308 employees was used. Ibrahim (2014) used the Pearson Product Moment Correlation in the analysis unlike in this study where the F-ANOVA was used in the analysis. Ibrahim (2014) conducted the study in Lagos State unlike the researcher that conducted the study in Enugu, South East Nigeria. The researcher found that human capital has a positive effect on quality of products.

4.5.2 Effect of Structural Capital on Efficiency

Structural capital positively affects the efficiency of the brewery Industry. The statement was confirmed to be true in the comparison of the findings of study with the empirical review. The evidence is shown in the calculated value (5235.331) which is greater than the critical value (2.7858). In the empirical review, Bello (2019) carried out a research on effect of structural capital on efficiency. In the study, study a population of 165 employees was studied unlike in this study by the researcher where a population of 308 was used. In the study by Bello (2019), the chi-square statistical tool was used in the analysis unlike in the study by the researcher where f-ANOVA was used in the analysis. Bello (2019) carried out the study in Ogun State the South West Nigeria unlike the researcher that carried out the study in the South East. By comparison, the result of Bello (2019) and that of the researcher were found to be the same. The researcher's opinion is that structural capital positively affects the efficiency of the brewery industry to a large extent.

5.1 Summary of Findings

This chapter dealt with the summary of findings, conclusion and recommendations based on the research work.

1. Human capital has a positive effect on quality of products. ($F(141) = 2368.32, p = 0.05$).
2. Structural capital positively affects the efficiency of the brewery Industry. ($F(141) = 5235.33, p = 0.05$).

5.2 Conclusion

Intellectual capital is important to both society and organizations, it can be a source of competitive advantage for businesses and stimulate innovation that leads to wealth generation, technological revolutions, the rise to preeminence of the knowledge based economy and the networked society have all led to the realization that successful companies excel at fostering creativity and perpetually creating new knowledge. Companies depend on being able to measure, manage and develop this knowledge. Management efforts therefore have to focus on the knowledge resources and their use. Intangibles and how they contribute to value creation have to be appreciated so that the appropriate decisions can be made to protect and enhance them. There must also be a credible way of reporting those intangibles to the market to give the investment community comprehensive information to assist in valuing the company more accurately. The researcher therefore concludes that intellectual capital has a significant and positive effect for competitive advantage in the brewery industry.

5.3 Recommendations

Based on the findings, the study recommended that:

1. Management of manufacturing firms should protect their human capital as an aspect of intellectual capital so as to enhance the quality of products through sending the employees on training and retraining courses.
2. Management of manufacturing companies should arrange responsibilities and accountabilities that define the position and relationship between the members of the organization.

REFERENCES

- Barney, Y. (2015). Management control systems design within its organizational context: findings from contingency-based research and directions for the future. *Accounting, organizations and society*, 28(2), 127- 168.
- Bassi, Z. (2013). General approach to representing multifaceted personality constructs: Application to state self-esteem. *Structural Equation Modeling: A Multidisciplinary Journal*, 1(1), 35-67.
- Bello, O. (2019). Evaluating environmental and social performance of large Portuguese companies: a balanced scorecard approach. *Business Strategy and the Environment*, 14(2), 73-91.
- Bontis, S. (2013). *Organizational Learning: A theory of action approach*. Reading, MA: Addison Wesley.
- Bontis, M. (2014). Collective Strategy: Social Ecology of Organizational Environments. *Academy of management review*, 8(4), 576-587.
- Burnaby, F. (2014). The use of pledges to build and sustain commitment in distribution channels. *Journal of marketing research*, 4(20); 18-34.
- Culow, L. (2013). National intellectual capital index: a United Nations initiative for the Arab region. *Journal of Intellectual Capital*, 5(1), 13-39.
- Das, G. (2013). Translation of scales in cross-cultural research: issues and techniques. *Journal of Advanced Nursing*, 58(4), 386-395.
- Edvinsson, O. and Malone, M. S. (2013). An empirical investigation of the relationship between intellectual capital and firms' market value and financial performance. *Journal of Intellectual capital*, 6(2), 159-176.
- Garcia, A. (2013). Determinants of accounting innovation implementation. *Abacus*, 41(3), 2 17-240.
- Hill, M. and Jones, A. (2014) The learning paradox and the university. *Journal of Applied Quantitative Methods*, 2(4), 375-386.
- Ibrahim, I. (2014). Strategy, organization and control: some possibilities for accounting research. *Accounting, Organizations and Society*, 15(1), 3-25.
- Inga, L. (2016). Time flies when you're having fun: cognitive absorption and beliefs about information technology usage 1. *MIS quarterly*, 24(4), 665-694.
- Inga, O. (2016) Knowledge transfer: A basis for competitive advantage in firms. *Organizational behavior and human decision processes*, 82(1), 150-169.

- Lorro, J. (2014), IC valuation and measurement: classifying the state of the art. *Journal of intellectual capital*, 5(2), 230-242.
- Mouritsen, D. (2014) Managing knowledge in organizations: An integrative framework and review of emerging themes. *Management science*, 49(4), 571-582.
- Okoye, P. (2018), Measuring organizational performance in the absence of objective measures: the case of the privately-held firm and conglomerate business unit. *Strategic management journal*, 5(3), 265-273.
- Porter, M. and Kramer, U. (2016). Integrators for organizational intellectual capital. *International Journal of Learning and Intellectual Capital*, 8(1), 5-17.
- Roos, H. (2014) A stakeholder approach to strategic performance measurement. *Sloan management review*, 38(3), 25-37.
- Siegel, K. (2014). Review: Knowledge management and knowledge management systems: Conceptual foundations and research issues. *MIS quarterly*, 107- 136.
- Stewart, P. (2014). Composite reliability in structural equations modeling. *Educational and Psychological Measurement*, 55(3), 394-406.
- Stewart, S. (2015). The relationship between strategic priorities, management techniques and management accounting: an empirical investigation using a systems approach. *Accounting, Organizations and Society*, 23(3), 243-264.
- Tasell, I. (2014). Antecedents to management accounting change: a structural equation approach. *Accounting, organizations and society*, 28(7), 675-698.
- Teece, G. (2017). Process improvement through performance measurement: the balanced scorecard methodology. *Work Study*, 50(5), 179-189.
- Tsai, A. (2014). Applications of structural equation modeling in marketing and consumer research: a review. *International Journal of Research in Marketing*, 13(2), 139-161.
- Ulrich, O. (2017). The partial least squares (PLS) approach to causal modeling: personal computer adoption and use as an illustration. *Technology studies*, 2(2), 285-309.
- Ulrich, O. (2015). An empirical examination of the influence of organizational culture on knowledge management practices. *Journal of Management Information Systems*, 22(3), 191-224.
- Walker (2017), The design and administration of mail surveys. *Annual review of sociology*, 225-249.
- Welbourne, L. (2018), Integrative strategic performance measurement systems, strategic alignment of manufacturing, learning and strategic outcomes: an exploratory study. *Accounting, Organizations and Society*, 30(5), 395-422.
- Wheelen, L. and Hunger, A. (2013). Back-translation for cross-cultural research. *Journal of cross-cultural psychology*, 1(3), 185-216.
- Williams, C. (2015). Complementarity and external linkages: the strategies of the large firms in biotechnology. *The Journal of Industrial Economics*, 361-379.
- Yound, S. (2015). Foci and bases of employee commitment: Implications for job performance. *Academy of management journal*, 39(2), 464-482.