



Intellectual Capital and Innovation Capability: A Strategy for Achieving Competitive Advantage

Oyekunle OYELAKIN¹, Maryam Tijjani ABBA², Ahmed ADAMU³,
Munir BABAN-MAIRAM⁴, Sallah Boniface NA'ANMAN⁵ Henrietta FAKAH⁶

¹ First & Corresponding Author Department of Business Administration, Philomath University, Abuja, Nigeria
Email: oyekunleoyelakin@yahoo.com

² Co-Author Marketing Department, Federal Polytechnic Bauchi, Bauchi, Nigeria
Email: tijjaniabbahmaryam@gmail.com

³ Co-Author Department of Economics, Nile University of Nigeria
Email: ahmed.adamu@nileuniversity.edu.ng

⁴ Co-Author Department of Business Administration, University of Jos, Plateau, Nigeria
Email: abummunir@gmail.com

⁵ Co-Author Department of Management Studies, Plateau State University, Boko, Nigeria
Email: sallahboniface@plasu.edu.ng

⁶ Co-Author Department of Management Studies, Plateau State University, Boko, Nigeria
Email: henriettafakah@gmail.com

Received: February 15, 2022. Revised: March 30, 2022. Accepted: May 24, 2022.

Abstract

Purpose – The ability to meet the high demand for education in Nigeria is lacking, making the region remain backwards in education. Given this reason, the study investigates the role of innovation capability in the relationship between intellectual capital and competitive advantage in tertiary institutions in Nigeria.

Research design, data, and methodology – The study is cross-sectional research, a total of 427 questionnaires were administered to respondents. The study distributed its questionnaire across 12 faculties at the University of Ibadan using a random sampling technique. Data were analyzed using ADANCO 2.1.1.

Result – The study reveals that human capital, structural capital, relational capital, and innovation capability positively affect competitive advantage. Innovation capability mediates the relationship between human capital and relational capital. However, structural capital was not mediated by innovation capability.

Conclusion – The study concludes that intellectual capitals and innovation capability are crucial to maintaining a competitive advantage over their peers. Achieving more significant success in the variables mentioned earlier will help Nigeria's tertiary institutions compete locally and internationally.

Keywords: Relational capital, Human capital, Structural capital, Innovation capability and Competitive advantage.

JEL Classification Code: O34, O36

1. Introduction

In an increasingly globalized world characterized by a growing knowledge economy, countries must identify and build comparative advantages in sectors that demonstrate potential for generating sustainable and job-producing growth (Qassas & Areiqat, 2021; World Bank International Finance Corporation, 2017). The education sector is one of the critical sectors that provide growth, jobs, and competitiveness and has the potential to catalyze economic transformation (Darvas et al., 2017).

In the year 1970 in Africa, higher education students were less than 400,000. In 2013, student enrollment was up to 7.2million, which indicates an average annual increase of 4.3% compared with a 2.8% global average rate (Darvas et al., 2017). Thus, the higher education sector has witnessed a tremendous increase in number, but the ability to meet up with the demand is lacking. Precisely, Nigeria has witnessed a phenomenal growth in the number of tertiary institutions from 2 at independence in 1960 to 73 in 2012, and about 181 other tertiary institutions in 2018, with student enrolment up to 24 million.

Despite this repositioning, the US remains a top-rated study destination globally (World Education News Review, 2019), where the best eight (8) universities are located. Nigerian enrollment in US institutions has been increasing yearly. Nigerians are the 14th largest group among international students and contributed an estimate of \$514 million in 2018, as reported by the Institute of International Education and the US Department of States Bureau of Education and Cultural Affairs.

These statistics indicate that the outflow of students out of Nigeria is increasing. In contrast, the push factors that underline the outflow of students are fundamentally a failure to meet up with booming demand and the poor quality of its universities (World Education News Review, 2019; ASUU, 2021). To solve the above menace, this study considered intellectual capital as a possible element to provide a competitive advantage as found in previous studies (Igielski, 2018; Altarawneh, 2017; Sadalia et al., 2017). Also, Anderson (2010) argued that in the new economic era, intellectual capital (IC) is the crucial factor for achieving success and a critical factor in maintaining competitive advantage.

Competitive business advantage can be achieved when creators have the required expertise, creativity, knowledge and efficiency in performing tasks (Najib & Nawangsari, 2021; Mubarik et al., 2019; Alsharah, 2017). The strength of a product/service offered determines the knowledge used for its creation (Igielski, 2018). IC has been acknowledged as a form of knowledge asset capable of increasing company market, value sustainability and durable resources that lead to competitive advantage (Yunita & Prastiwi, 2021). Leveraging and developing this intangible asset creates a core competency for organizations (Altarawneh, 2017). IC comprises human capital, structural or organizational capital, and relational capital (Aljuboori et al., 2022; Kuo et al., 2017; Sydler et al., 2013).

Innovation capability is critical for companies' competitiveness in the current global scenario (Saunila, 2020; Breznik & Hisrich, 2014). It has been agreed that innovation activity can influence a company's competitiveness and, consequently, performance (Omerzel & Jurdana 2016). Increased global and regional competitions have led firms to determine or sustain a competitive edge by engaging in innovation (Canh et al., 2019). Innovation is vital to creating something different from other competitors and can also be used as a strategy to achieve a competitive advantage (Zainurossalamia et al., 2016). The companies that have success and register the quickest growth use their daily activity innovative solutions by new or quality products and services (Tidd & Bessant, 2020; Ionescu & Dumitru, 2015). Therefore, firms must distinguish themselves and their rivals through unique strategies (Alqershi, 2019).

Extant works of literature have consistently documented a positive and significant effect between intellectual capital and competitive advantage (e.g. Savitri & Syahza, 2019; Igielski, 2018; Sadalia et al., 2017; Altarawneh, 2017). To validate these findings, a mediating variable is recommended. Studies such as (Najib & Nawangsari, 2021; Mubarik et al., 2019) have considered ambidexterity and employee innovativeness as mediating variables between intellectual capital and competitive advantage in the maritime and textile sector. This study, however, differs because it was conducted in the education sector. The study of Qassas and Areiqat (2021) was conducted in a private university in Jordan; therefore, replicating the same study in Nigeria is a significant gap in the literature. This study argued that competitive advantage could be achieved with intellectual capital and innovation capability in Nigeria's tertiary institutions to address these limitations.

2. Literature Review and Hypothesis Development

2.1. Theoretical Review

Resource-Based View (RBV) analyzes and interprets organizations' resources to understand how organizations achieve sustainable competitive advantage (Madhani, 2009). Resources that are valuable, rare, inimitable and non-

substitutable make it possible for businesses to develop and maintain competitive advantages (Barney, 1991) and superior performance (Collis & Montgomery, 1995; Grant, 1991; Wernerfelt, 1984). According to RBV, an organization can be considered a collection of physical resources, human resources and organizational resources (Barney, 1991; Amit & Shoemaker, 1993).

Thus, the source of sustained competitive advantage, according to Barney (1991), is for a firm in an industry to have heterogeneous intangible valuable, rareness, inimitable, and non-substitutable assets to be used in implementing a strategy that is not simultaneously being implemented by current or potential competitors and is difficult to be duplicated by such firms. This study viewed intellectual capital as intangible resources that cannot be the same in different organizations. However, the limitation of this theory is its inability to explain how intellectual capital can enhance capabilities. This is bridged by the dynamic capabilities theory (DCV).

DCV opined that acquiring valuable assets to protect intellectual property is not enough to achieve an advantage in the competitive world. Therefore, a successful firm can demonstrate response on time, quick and flexible innovation, and the management capabilities to effectively coordinate and redeploy internal and external competencies (Teece & Pisano, 1994; Teece et al., 1997). The framework integrates innovation capabilities as a source of competitive advantage. To be strategic, a particular capability must be honed to user needs, unique, and challenging to be replicated (Teece et al., 1997).

Given the above, the proposed framework of the study is depicted to test the mediating role of innovation capabilities in the relationship between intellectual capital and competitive advantage.

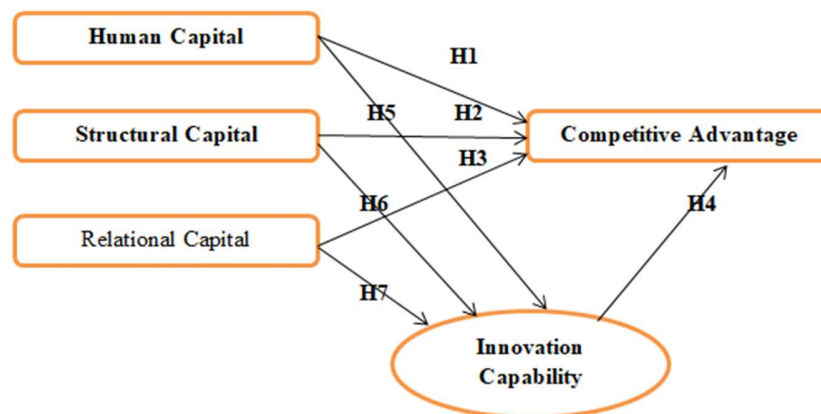


Figure 1: Conceptual Model

2.2 Conceptual Review

2.2.1 Competitive Advantage

CA is a strategic objective that every business seeks to achieve. CA is regarded as an extent organization is capable of imbuing in its customer great values than its competitors and, as a result, attain a competitive position (Altarawneh, 2017). CA is defined as an organization's ability to formulate and implement strategies that make its position better than other organizations operating in the same activity. (Alsharah, 2017). Halim (2010) posited that for any business to be at a CA over its rivals, many things have to be done at a lower cost to differentiate it from others. In this study, CA is the ability of Nigerian tertiary institutions to meet demand amongst the supply of students who wish to gain admission in capability and capacity and drastically reduce the number of students who seek foreign admission.

2.2.2 Intellectual Capital

According to Gogan and Draghici (2013), IC refers to a set of intangible assets that generate firm performance and value creation. Gowthorpe (2009) defined IC as intangible benefits accessed by a particular firm, which are generated from its workforce, and the relationships it establishes with other groups, such as customers, suppliers, and competitors. However, Gowthorpe's (2009) definition is more relevant to the present study in which IC is conceptualized as a combination of human, structural or organizational, and relational capital resources (Díez et al., 2010). In literature, IC is classified into three categories: human capital, relational capital, and structural or organizational capital (Ramos, 2003, Gogan & Draghici, 2013; Sydler, Haefliger, & Pruksa, 2013).

Altarawneh (2017) argues that human capital combines skills, experience, talents, attitude, motivation, and satisfaction. Human capital is a form of knowledge assets embedded in an individual employee within an organization (Nieves & Haller, 2014). This knowledge stays with an employee and goes with them when they leave an organization. Human capital comprises the knowledge stock of capital skills, attitudes, and intellectual agility of employees at all levels and their ability to make good decisions, deal with problems and create and maintain healthy interpersonal relationships (Gogan & Draghici, 2013).

Structural capital is a type of firm investment in systems, tools, and philosophy that affects the flow of knowledge processes (Gogan & Draghici, 2013) and hence remain with a firm even when employees leave. As another dimension of IC, structural capital refers to a total of organizational capabilities owned by a business and enables it to meet its market requirements (Yıldız et al., 2014). Relational capital gathers the value of the relationship a firm acquires and maintains with external bodies (López et al., 2006; Gogan & Draghici, 2013).

2.2.3 Innovation Capability

Innovation capability refers to a firm's ability to generate innovation through continuous learning, knowledge transformation, creativity, and exploitation of internal and external resources available to the firm (Iddris, 2016). Hii and Neely (2000) argue that innovation capability is the "potential to generate new ideas, identify new market opportunities and implement marketable innovations by leveraging existing resources and capabilities". Lawson and Samson (2001) refer to innovation capability as the "ability to continuously transform knowledge and ideas into new products, processes and systems for the firm and its stakeholders". Innovation capability in this study is the ability to generate and transform ideas to the advantage of an organization.

2.3 Literature Review

2.3.1 Intellectual Capital and Competitive Advantage

The study of Aljuboori et al. (2022) established the relationship between intellectual capital and performance was strengthened due to the mediation of innovation capability. Also, the study by Mubarik et al. (2019) found IC to help firms become ambidextrous in attaining competitiveness. According to (e.g. Qassas & Areiqat, 2021; Yahya et al., 2019), intellectual capital is necessary to help a firm achieve a competitive advantage over its competitor. A study by Savitri and Syahza (2019) analyzes the effect of human capital on competitive strategies. The results using Path Analysis show that human capital affects competitive strategies. Also, the study of Igielski (2018), whose study examines how intellectual capital helps build a competitive advantage for companies. The study documented that businesses need to protect their intellectual capital from building a solid competitive advantage.

Altarawneh (2017) examined the effect of intellectual capital on competitive advantage in Jordanian pharmaceutical companies and found a significant positive effect among the three dimensions of intellectual capital, which is human, structural and relational capital, on competitive advantage. The study encourages business owners to provide training support to staff to acquire needed skills to work effectively. A Study conducted by Sadalia, Irawati and Syafitri (2017) shows that human capital does not significantly influence competitive advantage, while both structural capital and relational capital have a positive and significant influence on the competitive advantage of Universities in Medan City.

The study of Chahal and Bakshi (2014) conceptualizes the framework of intellectual capital and considers the role of innovation as a mediating factor and learning as a moderating factor. The study was not empirically tested, which the researcher attested to have been the study's primary limitation. Koçoglu et al. (2009) reported that the intellectual capital dimension, human capital, organizational capital and relational capital positively influences competitive advantage. Given the empirical studies reviewed, this study hypothesizes as follows:

Hypothesis 1: Human capital has an effect on the competitive advantage at the University of Ibadan, Nigeria

Hypothesis 2: Structural capital has an effect on the competitive advantage at the University of Ibadan, Nigeria

Hypothesis 3: Relational capital has an effect on competitive advantage in the University of Ibadan, Nigeria

2.3.2 Innovation Capability and Competitive Advantage

Saunila (2020) found that conscious organizational actions related to developing innovative outputs provide grounds for firms to sustain competitive advantage. Alqershi (2019) concludes that innovation is vital to every firm and has a more significant effect on how a business is structured. Brem et al. (2016) studied how Nespresso achieved

competitive advantage through innovation by changing the game's rules and identifying under which circumstances innovation can serve as a competitive advantage. Anning-Dorson (2018) studied how firms in emerging markets create competitive advantage through innovation. The results show that innovation is positively related to competitive advantage.

Distanont and Khongmalai (2018) examined how innovation leads to a competitive advantage in the frozen food business in small-sized and medium-sized enterprises (SMEs). The study found innovation to enhance competitive advantage. The study by Zainurossalamia et al. (2016) proves that the innovation strategy of SMEs in Indonesia is in the ability to make better products in the production process by using advanced technology. Dogan (2016) revealed that two determinants of innovation, knowledge and technology output, positively affect competitiveness. Hana (2013) examined how CA is achieved through innovation and knowledge and found it essential to innovate and support an innovative culture. In the study of Ionescu and Dumitru (2015), innovation was the leading force of competitiveness, growth, profitability, and the creation of durable products/services. Therefore, this study hypothesizes as follows:

Hypothesis 4: Innovation capability has an effect on the competitive advantage at the University of Ibadan, Nigeria

2.3.3 Mediating Role of Innovation

Having recorded a consistency in findings between IC and CA, it is necessary to inquire into the relationship and find if innovation capital is a possible mediator in the relationship, having found that innovation capital enhanced CA. This forms the bases of this study by examining the mediating role of innovation capability in the relationship between IC and CA in Nigerian tertiary institutions.

Hypothesis 5: Innovation capability mediates the relationship between human capital and competitive advantage in the University of Ibadan, Nigeria

Hypothesis 6: Innovation capability mediates the relationship between structural capital and competitive advantage in the University of Ibadan, Nigeria

Hypothesis 7: Innovation capability the relationship between relational capital and competitive advantage in the University of Ibadan, Nigeria

3. Methodology

3.1 Design, Population and Sample Size

The study is descriptive research and a cross-sectional survey. The population of this study comprises 1,490 academic staff of the University of Ibadan. The study considered the University because it is the first University founded in Nigeria and the only University in Nigeria that falls among the first 600 universities in the world according to the World University Ranking 2020.

The Yamane sample size formula of 1967 was used to determine the study's sample size. The researcher arrived at 306 as the minimum sample. However, to provide for the shortfall that may arise when the questionnaire was collected, an additional 50% was added to the minimum sample size, as Israel (2013) suggested. The study arrived at 459 copies of questionnaires administered across 12 faculties in the University.

3.2 Measures

The variables used in the study were measured using items developed by previous scholars in the field. Human capital was measured using three (3) items, relational capital was also measured with three (3) items, and structural item was measured with four (4) items adapted from the study of Bontis (2004). Fourteen items were used to measure CA, which was gotten by Chi et al. (2009). Lastly, four items were used to measure innovation capability.

Table 1: Reliability and Validity Test

| Variables | Items | Cronbach Alpha |
|-----------------------|-------|----------------|
| Human Capital | 3 | 0.75 |
| Relational Capital | 3 | 0.91 |
| Structural Capital | 4 | 0.84 |
| Innovation Capability | 5 | 0.71 |
| Competitive Advantage | 14 | 0.89 |

All items were on five points Likert scale. The results of the validity assessed using the content validity index were above 0.6, which demonstrates that the construct is reliable to use (see Table 1).

4. Data Analysis

Four hundred and fifty-nine (459) questionnaires were distributed, and three hundred and ninety-seven were retrieved, showing an 86% response rate. The study further checked for missing data and found 46 missing data points out of 11,116 data sets, which constitute 0.41% and are below the minimum benchmark of 10% (Hair et al., 2014). The study, therefore, uses mean substitution to replace missing data.

Table 2: Demographic Characteristics of Respondents (n=397)

| Characteristics | Frequency | Percentage | Cumulative Percentage |
|-------------------------------|------------------|-------------------|------------------------------|
| Gender | | | |
| Male | 319 | 80.4 | 80.4 |
| Female | 78 | 19.6 | 100.0 |
| Age Distribution | | | |
| | Frequency | Percentage | Cumulative Percentage |
| 18-30 | 44 | 11.1 | 11.1 |
| 31-40 | 129 | 32.5 | 43.6 |
| 41-50 | 102 | 25.7 | 69.3 |
| 51-60 | 80 | 20.2 | 89.5 |
| 61-70 | 42 | 10.5 | 100.0 |
| Academic Qualification | | | |
| | Frequency | Percentage | Cumulative Percentage |
| M.Sc. | 49 | 12.3 | 12.3 |
| PhD | 230 | 57.9 | 70.2 |
| Associate Professor | 34 | 8.6 | 78.8 |
| Professor | 84 | 21.2 | 100.0 |

Table 2 presents respondent demographic characteristics. The gender distribution presents 80.4% male and 19.6% female in the study. This is an indication that male respondents are more than female respondents. The respondents' ages also vary; however, respondents between the ages of 31-50 constitute the large number of the study with 58.2%. Respondents' qualification also shows that PhD holders constitute 57.9%, Professor has 21%, 8.6% are associate professors, and 12.3% are Master's degree holders.

4.1 Model Fit

As seen in Table 3, items that do not load above 0.7 were excluded from the model as recommended by Hair et al. (2019). Therefore, all the remaining items are reliable to measure their respective reflective latent constructs. The

study accesses internal consistency using Jöreskog's composite reliability. Values above 0.60 are acceptable (Hair et al., 2019). Going by the rule, the study concluded that the construct used is reliable.

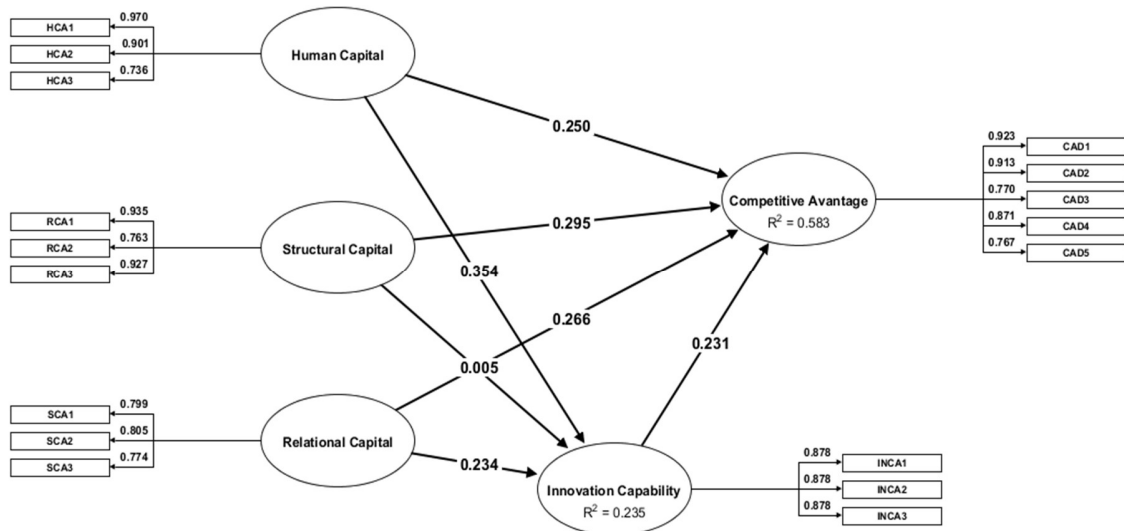


Figure 2: Model Fit

Table 3: Construct Reliability and Validity

| Construct | Items | Loadings | Jöreskog's rho | AVE | Cronbach Alfa |
|-----------------------|-------|----------|----------------|--------|---------------|
| Human Capital | HCA1 | 0.970 | 0.907 | 0.767 | 0.848 |
| | HCA2 | 0.901 | | | |
| | HCA3 | 0.736 | | | |
| Structural Capital | SCA1 | 0.935 | 0.914 | 0.781 | 0.873 |
| | SCA2 | 0.763 | | | |
| | SCA3 | 0.927 | | | |
| Relational Capital | RCA1 | 0.799 | 0.831 | 0.622 | 0.746 |
| | RCA2 | 0.805 | | | |
| | RCA3 | 0.774 | | | |
| Innovation Capability | INCA1 | 0.878 | 0.909 | 0.769 | 0.852 |
| | INCA2 | 0.878 | | | |
| | INCA3 | 0.878 | | | |
| Competitive Advantage | CAD1 | 0.923 | 0.9209 | 0.7248 | 0.9040 |
| | CAD2 | 0.913 | | | |
| | CAD3 | 0.770 | | | |
| | CAD4 | 0.871 | | | |
| | CAD5 | 0.767 | | | |

Note: AVE represents Average Variance Extracted

Cronbach's alpha (CA) also addresses whether the indicators for latent variables display convergent validity and hence display reliability (Garson, 2016). CA should be greater than 0.6. As shown CA of constructs in are above the minimum threshold.

Scholars recommend that the AVE value of 0.50 indicates that the construct has a convergent validity (Chin, 1998; Hair et al., 2011). This is logical because an AVE with 0.50 signifies that the latent construct explains half of its items or factors (Hair et al., 2014). As also shown in Table 4.2, these values indicate that all the study constructs have convergent validity.

Table 4: Discriminant Validity: Heterotrait-Monotrait Ratio of Correlations (HTMT)

| Construct | Human Capital | Structural Capital | Relational Capital | Innovation Capability | Competitive Advantage |
|-----------------------|---------------|--------------------|--------------------|-----------------------|-----------------------|
| Human Capital | | | | | |
| Structural Capital | 0.2723 | | | | |
| Relational Capital | 0.2855 | 0.4161 | | | |
| Innovation Capability | 0.4571 | 0.1983 | 0.3883 | | |
| Competitive Advantage | 0.5422 | 0.5561 | 0.6424 | 0.5723 | |

Discriminant validity problems are present when high HTMT values (Hair et al., 2019). HTMT values should be below 0.9 or below 0.85 (Henseler, 2017). Table 4 shows the HTMT report, and all values are below the minimum threshold of 0.85; therefore, the construct of the study achieved discriminant validity.

Table 5: Indicator Multicollinearity

| Indicator | Human Capital | Structural Capital | Relational Capital | Innovation Capability | Competitive Advantage |
|-----------|---------------|--------------------|--------------------|-----------------------|-----------------------|
| CAD1 | | | | | 2.3425 |
| CAD2 | | | | | 3.4880 |
| CAD3 | | | | | 2.3928 |
| CAD4 | | | | | 3.5673 |
| CAD5 | | | | | 1.7460 |
| HCA1 | 2.5875 | | | | |
| HCA2 | 3.1897 | | | | |
| HCA3 | 1.9125 | | | | |
| RCA1 | | 1.3928 | | | |
| RCA2 | | 3.3382 | | | |
| RCA3 | | 2.3558 | | | |
| SCA1 | | | 1.1106 | | |
| SCA2 | | | 3.9601 | | |
| SCA3 | | | 2.7445 | | |
| INCA1 | | | | 1.9661 | |
| INCA2 | | | | 2.1741 | |
| INCA3 | | | | 2.1731 | |

Table 5 shows the variance inflation factor (VIF) per set of indicators. The higher the variance inflation factor, the higher the degree of multicollinearity (Henseler, 2017). The calculated VIFs are below 5 for all the indicators. This

indicates the absence of multicollinearity. Therefore, the VIF has proved that this study's exogenous latent variables are free from any multicollinearity problem considerably.

4.2 Structural Model

Table 6: Direct Path Coefficient

| Effect | Beta | P-Value | Decision |
|---------------------------------------------------|-------|---------|-----------|
| Human Capital -> Competitive Advantage | 0.250 | 0.00 | Supported |
| Structural Capital -> Competitive Advantage | 0.295 | 0.00 | Supported |
| Relational Capital -> Competitive Advantage | 0.266 | 0.00 | Supported |
| Innovation Capability -> Competitive Advantage | 0.231 | 0.00 | Supported |
| Coefficient of determining R ² : 0.584 | | | |

Table 6 shows the path coefficients of standardized regression (beta values) that quantify the direct effect of an independent variable on a dependent variable (Hair et al., 2019). The study found the dimension of IC (human capital, relational capital, structural capital) and innovation capability to have a significant and positive effect on CA. The increase of 1% in human capital, structural capital, relational capital, and innovation capability will lead to a 24%, 28%, 27%, and 24% increase in competitive advantage.

The R square is 0.584%, meaning that 58.4% variance in competitive advantage is accounted for by human capital, relational capital, structural capital and innovation capability. The remaining 41.6% is accounted for by construct, which the model does not consider (see Table 6).

Table 7: Indirect Path Coefficient

| Effect | Beta | Cohen's f ² | P Value | Decision |
|-----------------------------------------------------|--------|------------------------|---------|---------------|
| HCA ->INCA-> CAD | 0.354 | 0.11 | 0.00 | Supported |
| SCA -> INCA-> CAD | 0.005 | 0.02 | 0.97 | Not Supported |
| RCA -> INCA-> CAD | 0.234 | 0.09 | 0.00 | Supported |
| Coefficient of determination (R²) | | | | |
| Innovation Capability | 0.2348 | | | |
| Competitive Advantage | 0.5834 | | | |

When controlling for the mediating effect of innovation capability on CA, human capital and relational capital have a significant relationship. However, innovation capability does not mediate the relationship between structural capital and CA.

Table 7 shows the effect size of the independent variable on the dependent variable. The effect of human capital on competitive advantage is 11%, meaning human capital has a moderate effect on competitive advantage. Structural has little or no effect on competitive advantage with a 2% effect size. Relational capital was found to have a moderate effect on competitive advantage with a 9% effect size. Going by the results presented, the relationship between human capital and relational capability is the most critical predictor of competitive advantage in the model.

Also in the table, competitive advantage has an adjusted R² value of 0.583, while innovation capability is 0.235. This means that human capital, relational capital and structural capital account for a 23.5% change in innovation capability, while innovation capability, on the other hand, accounts for a 58.3% change in competitive advantage.

4.3 Discussion of Findings

The result shows that human capital significantly affects the competitive advantage of Nigerian tertiary institutions. This is not farfetched as numerous studies on management have documented the importance of human resources in actualizing organizational goals and objectives. Tertiary institutions understand the importance to attract skilled and experienced employees. To achieve this, government and other regulatory bodies should devote resources to developing staff to enable them to compete internationally through research and other areas of competency. This finding is inconsistent with the study of Savitri and Syahza (2019) and Igielski (2018). They emphasize the role of

intellectual capital in building a robust competitive advantage among competitors and negate that of Sadalia, Irawati and Syafitri (2017).

Also significant is the effect of structural capital on competitive advantage. The finding is the re-affirmation of studies documenting a positive relationship between structural elements such as culture, structure, management style and performance (Gogan & Draghici, 2013). The culture of the Nigerian tertiary institution support innovation of new ideas through exchange programmes within and outside the country. Most strategies and procedures in achieving it were seen as a significant asset in achieving a competitive advantage globally. The study's finding is consistent with the study of Altarawneh (2017) and Chahal and Bakshi (2014).

Relational capital was significantly related to CA. The tertiary institution understands that embracing an alliance with an international university will enable staff to benefit from their expertise. The student-lecturer relationship is also critically agreed to. Students who have a good relationship with their lecturers tend to encourage their friends to sit back instead of seeking international admission. Getting feedback from the student will further promote the relationship between the institution and students as they seem to have been given a sense of belonging and will, therefore, in some ways, improve management decisions. The finding of the study supports Chen (2008). These findings have the backing of the underpinning theory on the platform on which the hypotheses were formulated, namely the resource-based theory that categorically posits that firms with valuable, rareness, inimitable, and non-substitutability resources have the potential of achieving a competitive advantage

Innovation capability mediates the relationship between human capital, relational capital, and CA. This result is found to conform with the dynamic capabilities paradigm on the platform on which the mediating relationships of this study were formulated. A possible explanation for this scenario is that the ability to innovate alongside intellectual capital will give tertiary institutions in Nigeria a competitive advantage.

5. Conclusion, Recommendations and Areas for Further Research

The study found that human capital, structural capital, relational capital, and innovation capability positively and significantly affect competitive advantage. Innovation capability partially mediates the relationship between intellectual capital and competitiveness dimensions. The study, therefore, concludes that intellectual capitals and innovation capability are essential factors to be considered to give an organization a competitive advantage. Achieving more significant success in the variables mentioned earlier will help Nigeria's tertiary institutions compete internationally. Intellectual capital is a valuable asset of an organization, and therefore to build a solid competitive advantage, businesses need to protect their intellectual capital. The ability to leverage and develop this intangible asset creates a core competency for organizations.

The study recommends that policymakers devote resources to training lecturers to improve their skills and experience. Nigeria's tertiary institutions should support the innovation of new ideas through exchange programmes within and outside the country. Nigeria's tertiary institutions should embrace alliances with an international universities to enable staff to benefit from their expertise. The study is only limited to the University of Ibadan and academic staff. Further research should include state and private tertiary institutions in Nigeria using non-academic staff. Other factors that other studies in other sectors should consider influence/trigger competitive advantage.

References

- Aljuboori, Z. M., Singh, H., Haddad, H., Al-ramahi, N. M., & Ali, M. A. (2022). Intellectual capital and firm performance correlation: the mediation role of innovation capability in Malaysian manufacturing SMEs perspective. *Sustainability*, 14(154), 1–27.
- Alsharah, A. M. T. (2017). Intellectual capital impact on competitive advantage achievement in Jordanian financial companies. *Global Journal of Human Resource Management*, 5(9), 1–3.
- Altarawneh, I. (2017). Effect of intellectual capital on competitive advantage in the Jordanian pharmaceutical companies. *European Journal of Business and Management*, 9(5), 39–53.
- Alqershi, N. (2019). Innovation capabilities as a source of inspiration: towards a sustainable competitive advantage in Yemeni manufacturing industry. *International Journal of Knowledge Management and Practices*, 7(1), 1–6.
- Amit, R., & Shoemaker, P. (1993). Strategic assets and organizational rents. *Strategic Management Journal*, 14(1)33–47.

- Anderson, C. (2010). Presenting and evaluating qualitative research. *American Journal of Pharmaceutical Education*, 74(8),141-148.
- Anning-Dorson, T. (2018). Innovation and competitive advantage creation: the role of organizational leadership in service firms from emerging markets. *International Marketing Review*. 34(4), 580-600.
- Barney, J. (1991). Firm resources and sustained competitive advantage. *Journal of Management*, 17(1), 99-120.
- Bontis, N. (2004). National intellectual capital index: a United Nations initiative for the Arab region. *Journal of Intellectual Capital*, 5(1), 13–39.
- Brem, A., Maier, M., & Wimschneider, C. (2016). Competitive advantage through innovation: the case of Nespresso. *European Journal of Innovation Management*, 19(1), 133–148.
- Breznik, L., & Hisrich, R. D. (2014). Dynamic capabilities vs . innovation capability : are they related? *Journal of Small Business and Enterprise Development*, 21(3), 368–384.
- Canh, N. T., Liem, N. T., & Thu, P. A. (2019). The impact of innovation on the firm performance and corporate social responsibility of vietnamese manufacturing firms. *Journal of Sustainability*, 11(3666), 1–14.
- Chahal, H., & Bakshi, P. (2014). Effect of intellectual capital on competitive advantage and business performance : Role of innovation and learning culture. *International Journal of Learning and Intellectual Capital*, 11(1), 51–70.
- Chen, Y. S. (2008). The positive effect of green intellectual capital on competitive advantages of firms. *Journal of Business Ethics*, 77(3), 271–286.
- Kuo, S. Y., Lin, P. C., & Lu, C. S. (2017). The effects of dynamic capabilities, service capabilities, competitive advantage, and organizational performance in container shipping. *Transportation Research Part A: Policy and Practice*, 95(3), 356-371.
- Chi, T., Kilduff, P., & Gargeya, V. (2009). Alignment between business environment characteristics, competitive priorities, supply chain structures, and firm business performance. *International Journal of Productivity and Performance Management*, 58(7), 645-669.
- Chin, W. W. (1998). The partial least squares approach for structural equation modelling. In Macoulides, G. A. (Eds.) *Modern methods for business research* (pp. 295-336), Mahwah, NJ: Lawrence Erlbaum Associates.
- Collis, D. J. & Montgomery, C. A. (1995). Competing on resources: strategy in the 1990s. *Harvard Business Review*, 73(4), 118-28.
- Darvas, P., Gao, S., Shen, Y., & Bawany, B. (2017). *Sharing Higher Education's Promise beyond the Few in Sub-Saharan Africa*. World Bank Publications.
- Diez, J. M., Ochoa, M., L., Prieto, M. B. & Santidrian, A. (2010). Intellectual capital and value creation in Spanish firms. *Journal of Intellectual Capital*, 11(3), 348-367.
- Distanont, A., & Khongmalai, O. (2018). The role of innovation in creating a competitive advantage. *Kasetsart Journal of Social Sciences*, 1(1), 1–7.
- Doğan, E. (2016). The effect of innovation on competitiveness. *Ekonometri ve İstatistik Sayı*, 24(1), 60-81.
- Garson, D. (2016). *Partial least squares: regression & structural equation models*. USA: Statistical Associates Publishing.
- Gogan, M. (2014). An innovative model for measuring intellectual capital. *Procedia Social and Behavioral Sciences*, 124, 194–199.
- Gogan, M., & Draghici, A. (2013). The impact of intellectual capital on organizational performance. *Procedia Social and Behavioral Sciences*, 221, 194–202.
- Gowthorpe, C. (2009). Wider still and wider? a critical discussion of intellectual capital recognition, measurement and control in a theoretical boundary context. *Critical Perspectives on Accounting*, 20(7), 823–834.
- Grant, R. M. (1991). The resource-based theory of competitive advantage: implications for strategy formulation. *California Management Review Spring*, 33(3), 114–135.
- Hair, J. F., Ringle, C. M. & Sarstedt, M. (2011), “PLS-SEM: indeed, a silver bullet”, *Journal of Marketing Theory and Practice*, 19(2), 139-151.
- Hair, J. F., Risher, J. J., Sarstedt, M., & Ringle, C. M. (2019). When to use and how to report the results of PLS-SEM. *European Business Review*, 31(1), 1–24.
- Hair, J., Black, W., Babin, B., & Anderson, R. (2014). *Multivariate data analysis* (7th ed.). UK: Pearson New International Edition.
- Halim, S. (2010). Statistical analysis on the intellectual capital statement. *Journal of Intellectual Capital*, 11(1), 61–73.
- Hana, U. (2013). Competitive advantage achievement through innovation and knowledge. *Journal of Competitiveness*, 5(1), 82–96.

- Henseler, J. (2017). Bridging design and behavioural research with variance-based structural equation modelling. *Journal of Advertising*, 46(1), 178–192.
- Henseler, J., Ringle, C. M., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modelling. *Journal of the Academy of Marketing Science*, 43(1), 115–135.
- Hii, J. & Neely, A. (2000). Innovative capacity of firms: on why some firms are more innovative than others. *Proceedings of the 7th International Annual EurOMA Conference*. Ghent.
- Iddris, F. (2016). Innovation capability: a systematic review and research agenda. *Interdisciplinary Journal of Information*, 11, 235–260.
- Igielski, M. (2018). The role of intellectual capital in building a competitive advantage for companies from the Baltic Sea Region in the transport, shipping and logistic industry. *SHS Web of Conferences*, 1015, 1–11.
- Ionescu, A., & Dumitru, N. R. (2015). The role of innovation in creating the company's competitive advantage. *Eco forum*, 4(1), 99–104.
- Israel G. D. (2013). Determining sample size. *Journal of Business Research*, 1(1), 1-5
- Koçoğlu, I., Imamoglu, S. Z., & Ince, H. (2009). The relationship between firm intellectual capital and competitive advantage. *Journal of Global Strategic Management*, 3(2), 181–208.
- Lawson, B. & Samson, D. (2001). Developing innovation capability in organizations: a dynamic capabilities approach. *International Journal of Innovation Management*, 5(3), 377-400.
- López, J. E. N., Salazar, E. A., Castro, G. M. de, & Sáez, P. L. (2006). Organizational capital as competitive advantage of the firm. *Journal of Intellectual Capital*, 7(3), 1–33.
- Madhani, P. M. (2009). Resource-based view (RBV) of Competitive Advantage: An Overview. In P. M. Madhani (Eds.), *Resource Based View (RBV): Concepts and Practices*, ICFAI University Press.
- Mubarik, M. S., Naghavi, N., & Mahmood, R. T. (2019). Intellectual capital, competitive advantage and ambidexterity liaison. *Human Systems Management*, 38(3), 267–277.
- Najib, H., & Nawangsari, L. C. (2021). Effect of intellectual capital on organizational sustainability with employee innovative behaviour as intervening variables in Pt. Jaya maritime services. *European Journal of Business and Management Research*, 6(1), 158–163.
- Nieves, J., & Haller, S. (2014). Building dynamic capabilities through knowledge resources. *Tourism Management*, 40(2), 224–232.
- Omerzel, D. G., & Jurdana, D. S. (2016). The influence of intellectual capital on innovativeness and growth in tourism SMEs: empirical evidence from Slovenia and Croatia. *Economic Research-Ekonomska Istraživanja*, 9664, 1–16.
- Qassas, K., & Areiqat, A. (2021). Management Intellectual Capital and its Role in Achieving Competitive Advantages at Jordanian Private Universities. *International Journal of Higher Education*, 10(2), 92–107.
- Ramos, M. (2003). De la contabilidad de los recursos humanos al capital intelectual y la gestión del conocimiento: una ampliación necesaria. *Revista De Dirección, Organización Y Administración De Empresas*, 29, 134–144.
- Sadalia, I., Irawati, N., & Isdiana, S. (2017). The influence of intellectual capital on competitive advantage on universities in Medan city. *Advances in Economics, Business and Management Research*, 46(1), 599–602.
- Saunila, M. (2020). Innovation capability in SMEs: A systematic review of the literature. *Journal of Innovation & Knowledge*, 5(4), 260–265.
- Savitri, E., & Syahza, A. (2019). Effect Of human capital and competitive strategies against the financial performance of small and medium enterprises. *International Journal Of Scientific & Technology Research*, 8(4), 86–92.
- Sydler, R., Haefliger, S., Prukša, R. (2013). Measuring intellectual capital with financial figures: can we predict firm profitability? *European Management Journal*, 32(2), 244-259.
- Teece, D. & Pisano, G. (1994). The dynamic capabilities of firms: an introduction. *Industrial and Corporate Change*, 3(3), 537-556.
- Teece, D., Pisano, G. & Shuen, A. (1997). Dynamics capabilities and strategic management. *Strategic Management Journal*, 18(7), 509-533.
- Tidd, J. & Bessant, J. R. (2020). *Managing innovation: integrating technological, market and organizational change*. John Wiley & Sons, Hoboken, NJ.
- Wernerfelt, B., (1984), A resource-based view of the firm. *Strategic Management Journal*, 1(2), 171-180.
- Yahya, N. A., Arshad, R., Kamaluddin, A., & Rahman, R. A. (2019). Green intellectual capital and firm competitive advantage: evidence from Malaysian manufacturing firms. *The Journal of Social Sciences Research*, 5(2), 463–471.
- Yıldız, S., Meydan, C., & Güner, M. (2014). Measurement of intellectual capital components through activity reports of companies. *Procedia - Social and Behavioral Sciences*, 109(1), 614–621.

Oyekunle OYELAKIN, Maryam Tijjani ABBA, Ahmed ADAMU, Munir BABAN-MAIRAM, Sallah Boniface NA'ANMAN
Henrietta FAKAH / *Fourth Industrial Review* 2(2), pp.11-23.

- Yunita, W., & Prastiwi, D. (2021). Effect of intellectual capital on firm value. *International Journal of Economics, Business and Management Research*, 5(6), 1–12.
- Zainurossalamia, S., Setyadi, D., Hudayah, S., & Rusmilawati. (2016). The Effect of Innovation on Firm Performance and Competitive Advantage. *European Journal of Business and Management*, 8(29), 113–120.