

# **An assessment of the influence of structural capital disclosure on the value of listed service firms in Nigeria.**

## **Abstract**

The purpose of this study is to assess the influence of structural capital disclosure on the value of listed service firms in Nigeria. This study employed a quantitative research approach, using data from annual reports and financial statements of 23 listed service firms in Nigeria. The sample will be selected using a census sampling technique. The study used multiple regression analysis coupled with correlation analysis. From the findings that emerged from the result, the study concluded that structural capital disclosure proxy by organisational, process, and innovation capital disclosures significantly influence the value of listed service firms in Nigeria. Given this finding, the study recommends that a framework for such disclosure should be institutionalized as firms want to limit this type of disclosure because of business secrecy and competitors disadvantage costs.

## **1. Introduction**

In recent years, there has been a growing interest in understanding the various factors that contribute to the value of listed service firms. One factor that has gained attention is the disclosure of structural capital information. Structural capital refers to non-physical assets owned by an organisation that enable human capital to function successfully (Khavandkar et al., 2016). It is also thought to be one of the three basic components of intellectual capital, which are the resources that allow human capital to function (Maddocks & Beaney 2002).

The disclosure of structural capital information has been regarded as a critical component of corporate reporting because it offers stakeholders with useful insights into a company's non-tangible assets. By disclosing structural capital information, listed service organisations can highlight their intangible assets, potentially influencing investors' perceptions of the firm's value. Based on this, Ani et al. (2022) claimed that managers should reveal intellectual capital relevant to market demands and prioritise information quality to increase firm value.

However, traditional accounting methods have not captured the extent to which structural capital disclosure affects the value of listed service organisations (Ciprian, 2012; Fischer, 2014; Lev et al., 2016; Ancuța, 2017; Minovski, 2018; Zambon, 2020). Shefei and Weiguo (2023) opined that this has

resulted in a significant quantity of unrecognised value in enterprises' financial reports. While previous research has investigated the impact of other types of disclosure on firm value, only a few empirical studies have specifically evaluated the relationship between structural capital disclosure and company value in the service sector using enterprise value.

This study, therefore, seeks to fill this research gap by analysing the impact of structural capital disclosure on the value of publicly traded service organisations. This study aims to provide empirical evidence on the possible influence of structural capital disclosure on firm value by examining service firms' disclosure policies and stock market performance. By undertaking this assessment, the study will give information on the relevance and effectiveness of structural capital disclosure as a strategy of increasing the value of publicly traded service organisations. This study's findings will not only add to the existing research on corporate disclosure and business value, but will also provide useful insights to practitioners, legislators, and other stakeholders.

The following parts will cover the theoretical framework, empirical methodology, data sources, and analytical approaches that were employed in this assessment. Additionally, the study will show and analyse the analysis outcomes. The study's comprehensive assessment aims to deepen understanding of the impact of structural capital disclosure on the value of listed service firms and to provide recommendations for firms and policymakers looking to maximise their value in the service industry.

## **2. Theoretical Background and Literature Review**

This section covers the literature and studies undertaken by researchers on the impact of structural capital disclosure on the value of listed service firms.

### **2.1 Conceptual Review**

The concept of structural capital disclosure and company value in relation to this study were reviewed. This includes disclosing organisational, process, and innovation information. The concept of firm value was linked to enterprise value and total asset ratio.

#### **2.1.1 Firm Value**

According to Widigdo (2013), Moeljadi and Supriyati (2014), and Daeli and Endri (2018), the concept of firm value has evolved in recent times. However, researchers have recently agreed that a firm's value is defined as the worth of the resources it creates for stakeholders, as well as the value it generates for society and the environment (Climent, 2016; Lonkani, 2018; Adegbe, 2019; Dang et

al., 2020; Brown, 2022). Thus, the value of a firm is an indication of the worth of a company as appraised by stock exchange market players (Borad, 2022 & Fernando, 2022).

On the other hand, a firm's value is determined by its relationships with stakeholders, the environment, and society. This study defines a firm's value as the overall market value of a firm resources, which includes the sum of claims by all stakeholders, including creditors (secured and unsecured), shareholders (preferred and common), non-controlling minority interest, and cash and cash equivalents.

### **2.1.2 Structural Capital Disclosure**

The concept of structural capital refers to information resources, processes, technologies, and intellectual property rights (Malhotra, 2003; Gogan et al., 2016; Spacey, 2017; Al-Jinini et al., 2019). It is a firm's essential component that offers strength through consistent relationships (Brooking, 1997). Structured capital serves as a firm's foundation. Its value is assessed by how successfully it helps a company organise and utilise human capital. The success of this organisation in achieving the firm's objectives determines its value.

However, Spacey (2017) opined that structural capital is separate from human capital. This has a significant impact on the development of human and intellectual capital. Van-Caenegem (2002) emphasised that such capital belongs to the company. It comprises resources such as databases, organisational frameworks, manuals, and training materials. According to Edvinsson and Malone (2001) and Bontis et al. (2000), it is non-human knowledge gained from corporate processes. Knowledge of this capital generates structures that facilitate development (Gogan et al., 2014).

Accordingly, Edvinsson (1997) classified structural capital into three categories: organisation, process, and innovation capital. This classification forms the basis of structural capital being created by employee yet owned by an organisation. De Villiers & Sharma (2017) related this to mechanisms and structures that support employee's performance. According to this study, structural capital is the knowledge embedded in firms' processes, procedures and routines that enable other forms of capital to function effectively (Hatane et al., 2019).

#### **2.1.2.1 Organisational Capital Disclosure**

There is no agreement on the concept of organisational capital, its measurement, or its contribution to output (Black et al., 2005). What made it difficult was that organisational capital is firm-specific

(Squicciarini & Marie Le Moue, 2012). This implies that each organisation has distinct organisational, structural, and operational characteristics. However, Black and Lynch (2005) contended that it is the techniques employed by organisations to boost productivity. This includes employee training, job design, and investments in the firm's processes, culture, and structure (Martín-de-Castro et al., 2006).

However, Ruta (2009) asserted that organisational capital encompasses all knowledge that has been accumulated and embedded through various tools. This defines organisational capital as knowledge transmission from employees. According to Qiang & Junhua (2010), organisational capital constitutes a phenomenon that converts employees' knowledge, skills, and experience into firm resources. Eisfeldt and Papaniko-laouz (2013) contended that it is an internal structure that influences performance while directing other aspects of intellectual capital.

Zhou et al. (2013) proposed that organisational capital was a firm's distinctive knowledge for utilising its resources. This demonstrates the firm's ability in resource utilisation and allocation for sustaining and implementing initiatives. Wang (2016) opines this as a resource for optimising the use of other dimensions of intellectual capital. It is an investment that determines the firm's position directions and a reservoir of knowledge implanted at the organisational level (Barbieri et al., 2021).

According to Spacey (2017), organisational capital is a component of a company's culture that allows employees to be more productive and creative. It allows actual and intangible resources to be productive. According to Lev et al. (2016), it is the most valuable asset that firms have because it directs other types of intellectual capital. In contrast, Bryl (2018) and Benevene et al. (2017) asserted that it is the policies and processes, research and development programmes, and ideas that drive innovation and performance.

According to the OECD (2015), firm operations are managed by a combination of knowledge, processes, and systems. The combination of these entail organisational capital. It is firm-specific knowledge that leads to higher performance, but it is manifested through technologies, practices, procedures, and designs (Lev et al., 2009; Hasan & Cheung, 2018). Accordingly, organisational capital disclosure is knowledge on the worth of entity-specific resources that allow humans to work efficiently, optimise procedures, produce innovations, and gain effective relational advantages.

#### **2.1.2.2 Process Capital Disclosure**

The concept of process capital comprises a series of value-added activities, performed by employees to achieve business objective (Ko, 2009). The investment in such activities represents process capital. Based on this, Spacey (2017) stated that process capital is a class of intangible assets that improves business process. Such assets include process design, systems, tools, research and development. However, Mathies (2014) averred that it is an intangible resource that represents knowledge and competences required for value generation. It revolves around investment in procedure that makes up firm's processes.

Brenner *et al* (2010) posited that it is derived from the techniques, procedures, and programs that enhance the delivery of goods and services. This concept is more akin to manufacturing firms' processes. Sue *et al.*, (2011), however, asserted that it is the knowledge resources concerning a firm's operation. The disclosure of process capital entails firm-specific information on the firm's ways of doing things. Castillo (2016) stated that it contains procedures, practices, and activities that promote value creation. Process capital is the economic value of an entity's built processes. Based on these, process capital disclosure is the information on the value of processes created by an entity for achieving goals.

### **2.1.2.3 Innovation Capital Disclosure**

Researchers have tried to conceptualize innovation capital based on technological, organisational, and sociological changes in an organisation. Edvinsson and Malone (1997), Wagner and Hauss (2000), Tseng and Goo (2005), Kijek (2012) and Chu and Huang (2017) averred that it is the capabilities used to create, introduce and commercialize new products and services to the market. This involves investment in capacities to produce new products through development of processes, services and technology.

Chen *et al.* (2004) suggested that it is based on the competence of organizing and implementing research and development. The outcome of such is the development of new technology and product. This shows the value of knowledge in both technological and organisational activities. Hsu and Mykytyn Jr. (2006) posited that innovation capital falls under the branch of explicit knowledge and such facilitates organisational learning. This idea describes how businesses can use knowledge to gain scale, breadth, and as well as differentiation. It is the investment in this type of knowledge to create ideas, products, services and inventions (Wu & Sivalogathan, 2013).

However, Duran *et al.* (2014) and Audretsch and Link (2018) argued that innovation capital is derived from human, social, and reputation capital. It is the investment and management of these forms of capital that bring forth innovation capital. Dyer *et al.* (2019) and Al-kalouti *et al.* (2020), however, opined that innovation capital is the capability to turn novel ideas into reality. Such is reflected in the value of intellectual property and certain other intangible assets (Rohana *et al.*, 2022). In this regard, innovation capital disclosure is the portrayal of information on the value of organisation resources that go to creating new ideas, products, services and inventions.

### **2.1.3 Organisational Capital Disclosure and Firm's Value**

Prior studies have suggested that organisation capital is the mechanism on which various other forms of capital rest (Wang & Lu, 2017). The interaction of these resources based on this mechanism increases firm value. Lev (2016), therefore, stated that it can be an institutional arrangement which integrates all resources in the firms. Kirwa and Ngeno (2020), however, posited that it is a structural element of firms' culture independent of employees. This structural element consists of business processes and systems, rules, norms and relationships. Firms should, therefore, disclose information about these resources.

However, Barbieri *et al.* (2021) suggested that it is the knowledge embedded in firm's structure. This includes knowledge of firm's routines, systems, culture and processes. This conceptualization is based on the know-how embedded in firm's structure. Evenson and Westphal (1995) averred that it is the knowledge used to combine human skills and physical capital into systems. The disclosure of these forms of capital might meet the information needs of the stakeholders.

### **2.1.4 Process Capital Disclosure and Firm's Value**

The concept of process capital refers to a set of value-added activities conducted by personnel to fulfil corporate goals (Ko, 2009). The investment in such operations is considered process capital. Based on this, Spacey (2017) defined process capital as a kind of intangible assets that improve company processes. Such assets include process design, systems, tools, and research and development. However, Mathies (2014) asserted that it is an intangible resource that embodies the knowledge and competencies required for value creation. It focuses on investing in the procedures that comprise the firm's processes.

According to Ordonez de Pablos (2002), process capital disclosure entails providing an aggregate of value-creating and non-value-creating processes. Such value must be included as part of the

information in the financial report. This need stems from a desire to meet the expectations of stakeholders. However, Van den Berg (2002) claimed that the value of process capital is demonstrated by the efficient use of important components of firms' resources. It is one of the components of the firm's worth, hence its disclosure is critical to meeting stakeholders' expectations.

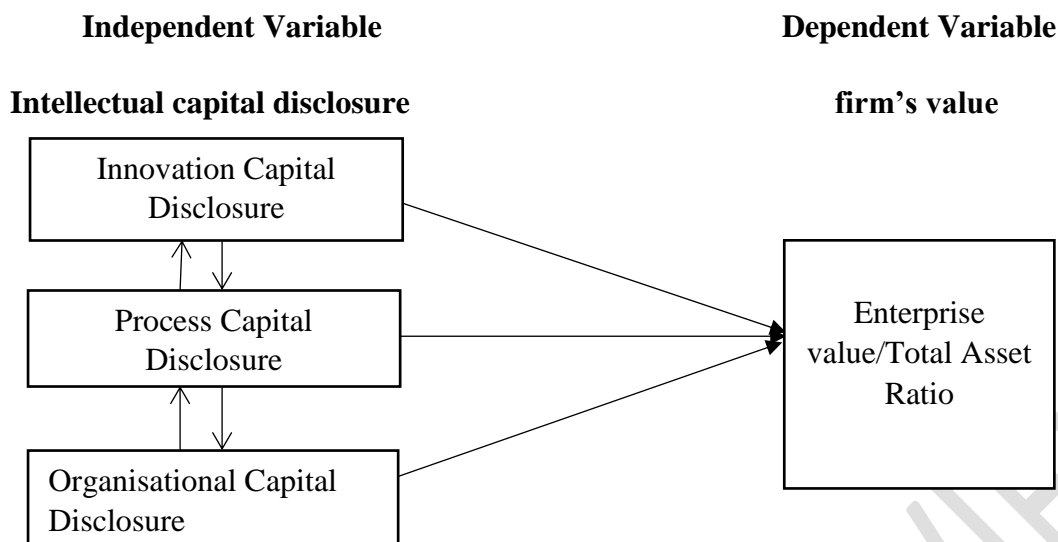
### **2.1.5 Innovation Capital Disclosure and Firm's Value**

Nadeem et al. (2017) and Aditya and Kaswar (2022) defined innovation capital as a firm's investment in research and development. Yuliya et al. (2018) noted that it indicates the firm's ability to generate and exploit new knowledge and developments. While innovation is a crucial driver of corporate success, information about it is critical (Bellora & Guenther, 2013). This is because improving innovation capital can be accomplished by boosting the flow of knowledge generation (Aditya & Kaswar, 2022). Thus, knowledge is the source of innovation, and providing information about it would assist people to realise the value of businesses.

However, a study conducted by Sorescu and Spanjol (2008) found that when a company achieves an inventive breakthrough, its value increases. This could lead to a rise in sales and earnings. Hsiao (2014) claimed that innovation capital has a significant positive impact on a company's worth. This implies that a firm's worth rises with its innovation capital. According to Hsu and Huang (2018), innovation capital influences business growth and long-term value. Simison (2022), on the other hand, stated that an increased access to information regarding a firm's innovation capital allows investors to make better selections.

### **2.1.6 Conceptual Framework**

**Figure 1** *The Conceptual Framework*



**Source:** Author's Conceptualisation, (2023)

## 2.2 Theoretical Review

This study applied signalling and legitimacy theory. While signalling theory describes the type of information that should be made public, legitimacy theory depicts the choice of disclosure, as well as the scope and content of that disclosure.

### 2.2.1 Signalling Theory

Signalling theory was introduced by Michael Spence in 1973. According to the signalling theory, various stakeholders should have equitable access to information at all times and promptly (Vernimmen, 2022). While weighting the cost and benefit of information sharing, no group should be at a disadvantage. Brigham (2011), however, stated that it is an action made by management to highlight the company's potential. Stakeholders want to know the prospect of firms to make decisions. Based on this, Harmadji et al. (2018) proposed that it depicts the disclosure of a company's success or failure. Accordingly, Puspitaningtyas (2019) believes that it assumes investors' perceptions of enterprises' prospects through trustworthy reporting and disclosure.

To suit the needs of stakeholders, all information about an organisation should be published. Based on this, Dewiyanti (2021) opines that signalling theory leads to larger disclosure and greater disclosure boosts a company's worth. It also decreases information gaps between companies and stakeholders (Bergh et al., 2014). Signals, however, are context-dependent and subjective, thus the cost should be balanced against their benefits.

### **2.2.2 Legitimacy Theory**

In 1975, Dowling and Pfeffer proposed the legitimacy hypothesis. The legitimacy theory presupposes that the actions of businesses must align with the expectations, norms, and values of society (Deegan et al., 2002; Dewiyanti, 2021). For a business to be successful, it must continue to be accepted by the community. Thus, information disclosed presents a socially responsible organisation (Holder-Webb, 2009). According to Zyznarska-Dworczak (2018), there is a social agreement between a company and society, and voluntary disclosure involves meeting community expectations (Deegan et al., 2000; Cormier & Gordon 2001; Deegan 2002).

Legitimacy theory has been applied to social and environmental disclosure, economic ventures, and environmental accounting (Guthrie et al., 2006 & Fisher, 2020). Nonetheless, adequate and relevant disclosure is required by stakeholders' expectations (Noah, 2017). According to Olateju et al. (2021), failure to achieve these expectations may jeopardise the organisation's survival. For the organisation to be considered legitimate, full disclosure must be maintained.

Organisations must understand and connect their actions and behaviours with society's expectations. One approach to this is to disclose information about a company's operations. Firms may face challenges if their activities and behaviours do not align with cultural and social expectations. However, a discrepancy between how society believes an entity should act and how the organisation is perceived to have acted creates a "legitimacy gap" (Deegan, 2014).

### **2.3 Empirical Review**

In the United States, Belo et al. (2022) explored the economic elements that influence a firm's market value. The variables investigated are physical capital, labour, knowledge capital, and brand capital. According to the study, human capital accounts for 14-21% of a firm's market value on average and varies by industry, whereas physical capital contributes 30-40%. Knowledge capital contributes 20-43% of a company's market worth, whereas brand capital accounts for 6- 25%. Considering the rise of integrated reporting, Salvi et al. (2020) conducted empirical research on the impact of intellectual capital on business value-creation processes. Based on a sample of 110 organisations, the findings revealed a significant positive link between structural, human, social, and relational capital, and company value.

Ahmed et al. (2019) also conducted empirical research on the relationship between organisations' absorptive ability, intellectual capital, and commercial performance. The study used partial least

squares structural equation modelling (PLS-SEM) to examine responses from a survey of 192 managers. The study found that the relationship between the components of intellectual capital and company success is unaffected by organisations anticipated absorptive ability. While human and organisational capital had a strong positive influence, social capital was not a good predictor of business performance.

Siti et al. (2020) investigated the impact of intellectual capital on corporate value via financial performance. This study used descriptive statistics on the Indonesian food and beverage sector with a sample size of 60 observations. The study found that structural capital had no effect, however human capital and capital employed did have a positive and significant impact on business value. Human and structural capital have no apparent effect on financial performance. The impact of structural and human capital on corporate value, however, cannot be mediated by financial performance.

Opong and Pattanayak (2019) examined investment in intellectual capital and bank productivity in India. These variables were assessed in terms of asset turnover and employee productivity. The study used a panel of 73 commercial banks for 12 years, from 2006 to 2017, and discovered that specific components of intellectual capital increase productivity. Haris et al. (2019) evaluated the impact of intellectual capital on the performance and profitability of banks in Pakistan. Data from 26 banks' annual reports from 2007 to 2016 were examined using Gaussian Mixture models. Capital-employed efficiency and human capital efficiency were discovered to have a considerable favourable impact on performance. Structural capital efficiency was found to have a large negative influence on bank profits.

Xu and Li (2019) explored and compared the relationship between four types of intellectual capital and the performance of China's manufacturing industry. The study used multiple regression analysis to examine data from SMEs listed on the Shenzhen Stock Exchange between 2012 and 2016. The study found that there is a considerable positive association between intellectual capital and financial performance. Furthermore, the three most important value drivers for performance are capital employed efficiency, human capital efficiency, and structural capital efficiency. However, relational capital efficiency has a less significant impact on performance.

Martín-de Castro et al. (2019) conducted a qualitative review of the literature on intellectual capital and business value. The study used bibliographical coupling and co-citation analysis to look at materials in the JCR-SSCI database between 1990 and 2016. The study identified three major stages

of intellectual capital evolution. The report also identified four critical areas for the current and future expansion of intellectual capital. This includes measuring intellectual capital, applying it to new business models, disclosing it, and incorporating it into human resource and social capital procedures.

Mačerinskienė and Survilaitė (2019) explored how a company's intellectual capital affects the market value of listed firms in Baltic countries. The study applied exploratory factor analysis to data from 58 Baltic States companies registered on the Nasdaq Baltic stock exchange. The study also discovered that human, legal, and relational capital influence market value, although structural capital did not. The data supported the idea that human capital and relational capital have a significant influence on the market value of listed companies.

According to the literature analysis, few research have been conducted in Nigeria to establish the impact of structural capital disclosure on a firm's value. While few have focused on a specific area of the economy, and the service sector has received little attention from scholars. In addition, other studies have used Price/Earnings Ratio, Market-Book-Value Ratio, Earning per Share, Net Assets per Share, Gross Revenue per Share, and Share Price to estimate a firm's value. However, this study employed the enterprise value to assets ratio as a proxy for a firm's value. Hence, the following hypothesis is formulated:

*H<sub>0</sub>: The value of listed service firms in Nigeria is not significantly impacted by structural capital disclosures.*

### **3. Methodology**

The study's population, sampling size, methods, research design, and data sources are all covered in the methodology section.

#### **3.1 Research Design**

Because the data for this study were derived from previous economic events, an ex-post factor research method was used. The structural capital disclosure was examined using text analysis and a disclosure index to determine the level of disclosure among publicly traded service firms. The enterprise value to assets ratio was employed to measure the firm's value. As of December 31, 2023, the population consisted of 23 service firms that were listed on the Nigerian Exchange. This study used census sampling methodologies. This study spanned fourteen years, from 2010 to 2023. The data was collected and analysed using basic statistical tools that offer descriptive and inferential information about the variables investigated.

### 3.2 Model Specification

The mathematical notion that this study employed is indicated in the model specification. This is based on a theoretical understanding of the relationship between independent and dependent variables. In accordance with Jardon and Martinez-Cobas (2021), the study stated the model in econometric form as follows:

$$Y_{it} = f(STCD) \dots\dots\dots Eqn (2)$$

$$Y_{it} = f(OCD, PCD, ICD)$$

$$Y_{it} = \beta_0 + \beta_1(OCD) + \beta_2(PCD) + \beta_3(ICD) + \mu$$

Where  $Y_{it}$ : Firm's value as measured by enterprise value for a particular listed service firm in year t.

$STCD_{it}$ : Firms' structural capital disclosure in year t

$OCD_{it}$ : Firms' organisational capital disclosure in year t

$PCD_{it}$ : Firms' process capital disclosure in year t

$ICD_{it}$ : Firms' innovation capital disclosure in year t

The coefficients of organisational, process, and innovation capital disclosure are represented by  $\beta_1$ ,  $\beta_2$ , and  $\beta_3$ , with  $\beta_0$  being the constant.

$\mu$ : Error term.

Based on the literature research and the hypotheses employed in the investigation, it is anticipated that  $\beta_1$ ,  $\beta_2$ , and  $\beta_3$  will all be bigger than zero.

$$\text{Index} = (\Sigma \text{ score} / \text{TN}) \times 100$$

Where: Index for different dimensions equals the structural capital disclosure index (SCD Index);

Score 5: if financial or quantitative information about the SCD is revealed along with a narrative;

Score 4: if just quantitative or monetary information about the SCD is provided, without any explanation;

Score 3: if narrative disclosure of SCD knowledge is made;

Score 2: when SCD material is shown, discussed, and only briefly provided while talking about other material, with little or no references made;

Score 1: if the business claims that it doesn't matter whether SCD elements are disclosed;

Score 0: If no SCD information is revealed.

TN stands for total number of measured items (74 items).

**Table 1 Firms' Value**

Variables	Description	Measurement	Source
Firms' value	Enterprise value is the market capitalization plus short-term and long-term debt minus any cash divided by total assets.	Calculated as: (Market value of Debt + Market value of Equity + Minority interest – Cash – investment)/Total Asset	Jason (2022)

Source: Author's Compilation, (2024)

**Table 2. Organisational Capital Components, Score, Disclosure Index**

Intellectual Capital			
Components	Items	Score	Disclosure Index
OCD	Mission statement	P31 ∈ (5, 0)	
	work culture and values	P32 ∈ (5, 0)	
	company policy	P33 ∈ (5, 0)	
	capital structure	P34 ∈ (5, 0)	
	organisational chart	P35 ∈ (5, 0)	
	Board structure	P36 ∈ (5, 0)	
	organisational infrastructure	P37 ∈ (5, 0)	
	governance	P38 ∈ (5, 0)	
	technology	P39 ∈ (5, 0)	

infrastructure

$$\text{OCD} = \frac{\text{P31} + \text{P32} + \text{P33} + \text{P34} + \text{P35} + \text{P36} + \text{P37} + \text{P38} + \text{P39}}{9}$$

Source: Angelini *et al.* (2019), Heryana *et al.* (2020) and Endah, (2020)

**Table 3. Process Capital Components, Score, Disclosure**

**Index**

Intellectual Capital

Components	Items	Score	Disclosure Index
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PCD	Corporate Culture	P40 ∈ (5, 0)	
	Information Systems (Technology)	P41 ∈ (5, 0)	
	Financial Relations Business	P42 ∈ (5, 0)	
	Collaboration	P43 ∈ (5, 0)	
	Favourable contracts	P44 ∈ (5, 0)	
	Organization flexibility	P45 ∈ (5, 0)	
	Organization learning	P46 ∈ (5, 0)	
	Quality management	P47 ∈ (5, 0)	
	business procedure	P48 ∈ (5, 0)	

$$\text{PCD} = \frac{\text{P40} + \text{P41} + \text{P42} + \text{P43} + \text{P44} + \text{P45} + \text{P46} + \text{P47} + \text{P48}}{9}$$

Source: Angelini *et al.* (2019), Heryana *et al.* (2020) and Endah, (2020)

**Table 4. Innovational Capital Components, Score,**

**Disclosure Index**

Intellectual Capital

Components	Items	Score	Disclosure Index
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ICD	Research and	P49 ∈ (5, 0)	
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Development	
Brands	P50 ∈ (5, 0)
Knowledge-based	P51 ∈ (5, 0)
Research	
collaboration	P52 ∈ (5, 0)
Goodwill	P53 ∈ (5, 0)
Patent	P54 ∈ (5, 0)
Copyright	P55 ∈ (5, 0)
Trademarks	P56 ∈ (5, 0)
Licenses	P57 ∈ (5, 0)
Commercial rights	P58 ∈ (5, 0)

ICD = P49+

P50+P51+P52+P53+P54+P55+P56+P57+P58

10

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Source: Angelini *et al.* (2019), Heryana *et al.* (2020) and Endah, (2020)

#### 4. Data Analysis and Discussion of Findings

The data analysis from the firms' financial statements and other pertinent documents from the Nigerian Exchange Group (NGX) is presented in this chapter.

##### 4.1 Descriptive Statistics

The enterprise value to asset ratio (EVTA) was 0.924532 with a median of 0.800396. The data ranges from 0.0000 to 5.148235. With a standard deviation of 0.829043, each data point differs from the mean by an average of 82.90%. The variability was extremely high. The dataset's skewness of 1.839857 indicates a positively skewed shape. The kurtosis is 7.714633, showing leptokurtic distribution. The Jarque-Bera test was used to determine whether the sample data followed a normal distribution or not. The results of this test showed that the EVTA distribution varied significantly from the normal distribution (t-statistic = 445.6105, p-value = 0.0000).

The mean value of organisational capital disclosure (OCD) was 1.031215. The maximum number of items disclosed was 2.6667, while the minimum was 0.0000. The score has a standard deviation of 0.782938, showing relatively little variance among the data. The skewness was -0.049431, indicating that the distribution is slightly left-skewed. Kurtosis was 1.708157, indicating that most of the data

distribution will fall on the right side of the mean. The Jarque-Bera statistic was 20.91296, with a probability of 0.000029. This indicates that the distribution was not normal.

The average size of the process capital disclosure (PCD) was 0.532887. PCD values vary from 0 to 2.11111. The standard deviation was 0.521259, showing that the observations differed slightly from the mean. The skewness of this distribution was 0.787634, indicating a right-skewed distribution. The kurtosis was 2.669174, which indicates a platykurtic distribution. The Jarque-Bera test statistic for a normal distribution was 32.27849, with a p-value of 0.000. This p-value is less than the significance level of 5%, suggesting that the data does not follow a normal distribution.

Furthermore, the innovation capital disclosure (ICD) mean was 0.498514 in size. These observational values, which corresponded to the minimum and maximum values, ranged from 0 to 2.2. Deviations from the mean on the standard were 0.485675. This suggested a minimal fluctuation. With skewness and kurtosis of 0.709187 and 2.822585, respectively, the distribution is both platykurtic and right-skewed. With a p-value of 0.000003, the Jarque-Bera test statistic for a normal distribution was 25.45562, indicating the lack of normality.

**Table 5 Descriptive Statistics**

Parameter	EVTA	OCD	PCD	ICD
Mean	0.924532	1.031215	0.532887	0.498514
Median	0.800396	1.111111	0.444444	0.500000
Maximum	5.148235	2.666667	2.111111	2.200000
Minimum	0.000000	0.000000	0.000000	0.000000
Std. Dev.	0.829043	0.782938	0.521259	0.485675
Skewness	1.839857	-0.049431	0.787634	0.709187
Kurtosis	7.714633	1.708157	2.669174	2.822585
Jarque-Bera	445.6105	20.91296	32.27849	25.45562
Probability	0.000000	0.000029	0.000000	0.000003
Sum	276.4351	308.3333	159.3333	149.0556
Sq. Dev.	204.8190	182.6716	80.96982	70.29243
Obs	299	299	299	299

Sources: Researcher's Computation, (2024)

#### 4.2 Panel Unit root Test (Stationary Test)

The results of the panel unit root test, which are displayed in Table 6, indicated whether or not each panel variable was stationary. The Harris-Tzavalis test statistics were used to administer the test. Consequently, the series is not stationary if the p-value is less than 0.05. The p-values in this instance

for EVTA, OCD, PCD, and ICD were 0.0000, respectively. This implied that the variables had no trend over time and had a constant mean, standard deviation, and finite variance.

**Table 6 Panel unit root test**

Variables	Harris-Tzavalis		Breitung	
	Statistic	p-value	statistic	p-value
EVTA	-6.6641	0.0000	-0.3590	0.3598
OCD	-5.4850	0.0000	-1.3240	0.9270
PCD	-8.1286	0.0000	-0.9992	0.1598
ICD	-4.9869	0.0000	-1.2306	0.1092

*Sources: Researcher's Computation, (2023)*

### 4.3 The Effect of structural capital disclosure on listed service firms' Value in Nigeria

#### 4.3.1 Correlation Analysis

The relationship between a variable's current values and its historical values is measured via serial correlation. The purpose of this was to find any linear correlations or dependencies between the independent variables. This study's results, which are displayed in Table 7, suggest that OCD and PCD have a somewhat substantial positive connection (0.8087). OCD and ICD have a somewhat positive connection (0.5608). A moderately strong association (0.6176) was also found between PCD and ICD. Ultimately, the data demonstrated that the independent variables exhibited a majority of somewhat positive significant associations.

**Table 7 : Correlation analysis**

Correlation	OCD	PCD	ICD
Probability			
OCD	1		
PCD	0.7297	1	
ICD	0.4232	0.5289	1
	0	0	

*Sources: Researcher's Computation, (2023)*

#### 4.2.2.2 Variance inflation factors

To analyse the type of relationship that exists between the independent variables, the study used a variance inflation factor (VIF). VIF coefficient estimates demonstrate the linear reliance on the model's independent variables. The VIF values for the PCD, OCD, and ICD variables were 3.26, 2.94, and 1.65, respectively, which were significantly below the threshold of 10. This indicates that there is no substantial multiple correlation in the model.

**Table 8: Variance Inflation Factors**

Variance Inflation Factors		
Variable	VIF	1/VIF
PCD	2.45	0.408519
OCD	2.15	0.465553
ICD	1.39	0.717323

*Sources:* Researcher's Computation, (2023)

#### 4.3.2 The Effect of structural capital disclosure on listed service firms' Value in Nigeria

The redundant fixed effect test was used to compare the efficiency of the pooled ordinary least squares model to the fixed effects model. The test statistic of 19.97 and p-value of 0.0000 suggest that the fixed effect model was more acceptable. In addition, the fixed effect and random effect models were evaluated for robustness. The Hausman test yielded a t-statistic of 10.32 and a p-value of 0.0160, showing that fixed effects are more efficient. Breusch and Pagan's Lagrangian multiplier test for random effects yielded a result of 543.67 with a p-value of 0.0000, indicating that the random effect model is more appropriate than the Pooled OLS.

However, the Wald test for groupwise heteroskedasticity was used to assess heteroskedasticity in error terms. Significant test statistics suggest that the residuals are homoskedastic, otherwise heteroskedastic. In Table 8, the test result is 9540.48, with a p-value of 0.0000. This suggests that the data is heteroskedastic. Autocorrelation was also tested using the Wooldridge autocorrelation test. The results show a value of 8.061 with a p-value of 0.0095. This demonstrated that the independent variables were serially correlated. Based on this, the study performed Generalised Least Squares regression with linked disturbance.

The Wald test statistic result of 130.81 with a p-value of 0.0000 indicates that the predictors accurately predict the target variable. As reported in Table 8, the OCD coefficient is 0.189174. This means that for every unit increase in OCD disclosure, the EVTA increases by approximately 18.9174 percent. Additionally, the PCD coefficient is -0.1044028. This indicates that for every unit increase in PCD volume, the value of EVTA decreases by 10.44028%. The ICD coefficient is 0.3293951, which means that each unit increase in ICD volume results in a 32.93951% rise in EVTA. OCD and ICD have p-values of 0.000, whereas PCD has a p-value of 0.056. OCD and ICD have a statistically significant effect on EVTA, whereas PCD has a moderately significant effect on EVTA.

**Table 9: Regression Estimate on Effect of Structural Capital Disclosure on Firms' Value.**

Variables	Pooled OLS			Fixed Effect			Random Effect		
	Coeff	t-value	p-value	Coeff	t-value	p-value	Coeff	t-value	p-value
OCD	0.452924	4.99	0.000	0.1280585	0.83	0.414	0.158192	1.06	0.289
PCD	-0.5338637	-3.47	0.001	-0.102375	-0.52	0.610	-0.14199	-0.83	0.408
ICD	0.4082284	3.48	0.001	0.4000411	1.53	0.141	0.393512	1.44	0.150
Constant	0.5050731	6.69	0.000	0.6476045	7.97	0.000	0.640898	4.60	0.000
R-squared	0.1549			0.1209			0.1286		
Adj. R-squared	0.1463			0.0977			0.0974		
F-statistic	18.02			3.89			12.58		
Probability	0.000			0.0227			0.0056		
Hausman test	10.32 (p-value=0.0160)								
Panel Wooldridge test	8.061(p-value=0.0095)								
Wald Test	9540.48(p-								

value=0.0000)

Redundant fixed effect 19.97(p-  
test value=0.0000)

543.67(p-  
Lagrange Multiplier Tests value=0.0000)

Source: Author's computation, (2023)

**Table 10: GLS Estimate on Effect of Structural Capital Disclosure on Firms' Value.**

Variables	Generalized Least squares		
	Coeff	t-value	p-value
OCD	0.189174	5.02	0.000
PCD	-0.1044028	-0.91	0.056
ICD	0.3293951	4.75	0.000
Constant	0.622737	13.63	0.000
Wald Chi2(3)	130.81		
Probability	0.0000		

Source: Author's computation, (2023)

#### 4.4 Discussion of Findings

This study evaluates the impact of structural capital disclosure on a firm's value in Nigeria. According to the study's findings, the amount of disclosure was low, with the highest quality score among the studied organisations being 26.67% and the lowest being non-disclosure. This is far below the average. The medium of such disclosure was the narrative form offered in the chairman's and director's reports, as well as the notes to the financial statements, with nothing found in the financial statements. Organisational capital was the most mentioned item. More than 70% of businesses did not publish information about process capital. This was widely predicted, as there is no framework or norms for such disclosure in the financial statements.

However, this study discovered that there were strong positive connections between firm value and organisational and innovation capital, whereas process capital had a negative negligible relationship. This was consistent with research undertaken by Tran and Vo (2020), Li et al. (2019), and Ocak and

Findik (2019). This was also expected, given that corporations have historically been hesitant to reveal additional information about their process capital due to its associated cost. This cost called “competitive disadvantage costs” need to be considered as competitors can use such disclosure to the firm’s disadvantage. In agreement with this, Monk (2017) stated that the difference between product, market competition and the threat of entry has been a factor on voluntary disclosures.

## 5. Conclusion and Recommendations

The study used multiple regression and correlation analysis to assess the impact of structural capital disclosure on Nigerian listed service organisations. According to the study's findings, structural capital disclosure proxy by organisational, process, and innovation capital has a substantial influence on the value of listed service organisations in Nigeria. This implied that the more structural capital dimensions are disclosed, the greater the influence on business value, whether favourably. Given this finding, the study suggests that a framework for such disclosure be institutionalised, as organisations prefer to limit this type of disclosure due to business secrecy and competitive disadvantage costs.

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