Leadership Capability and Process Innovation Among Nigeria's Food and Beverage Manufacturers

***Ogaga-Oghene, Joshua O.[1], Yalokwu, Patrick.O.[2], Omankhanlen, Ehimare A.[3]**
[1,2] Department of Business Administration, Crawford University, Igbesa, Ogun State
[3]Department of Finance, Covenant University, Ota, Ogun State.
*Email: joshogaga@gmail.com
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Abstract
Underutilised capacity remains a significant challenge in Nigeria's food and beverage sector despite the growing market for processed food and beverage products, which is indicative of a lack of process optimisation and a need for process innovation. This study examined the influence of leadership capability on process innovation. Survey research design with a sample of 353 managers drawn from six quoted companies was employed. The validated questionnaire was administered using proportional and simple random sampling techniques and the response rate was 61.19%. The PLS-SEM analysed data indicate that leadership capability has a positive and significant influence on process innovation (β = 0.871, R2 = 0.758, t-statistic = 38.790, and p-value = 0.000) The study recommended that leader-managers at all levels should grow and strengthen their leadership skills by establishing guidelines, strategically create work groups, and demonstrate leadership support.

Keywords: *Food and beverage manufacturing, Innovation performance, Leadership capability, Organisational capability, Process innovation, Sustainable growth*

INTRODUCTION

Globally, intense competition, technological changes, and uncertainty are shaping the business environment, and raising survival and sustainable growth challenges among company managers and stakeholders (Shaher & Ali, 2020; Zarei & Jabbarzadeh, 2019). Particularly, these challenges underscore the need to develop a strong process innovation performance, leading to an optimised manufacturing process, inducing cost efficiency and sustainable firm growth. Whereas innovation has been acknowledged as a viable survival and growth strategy, developing and sustaining the ability for innovation has proven to be a critical challenge (Chatterjee et al., 2023; Forsman, 2021).

Most prior studies have examined innovation performance from the standpoint of being a performance improvement factor (del Carpio et al., 2021; Hock-Doepgen et al., 2021; Iherobiem & Sanusi, 2023; Seclen-Luna et al., 2022; Shaher & Ali, 2020). However, given the critical role of a firm's resources in defining performance outcomes, it is important also to examine innovation performance from the perspective of a firm's resource capabilities (Barney, 1991; Utami & Alamanos, 2023).

The notions of innovation, leadership as an organisational capability, and process innovation are particularly important in the context of the food and beverage industry worldwide. Companies operating in the industry are encumbered with increasing survival pressures occasioned by a growing global population estimated to reach 8.5billion by 2030 (World Economic Forum, 2022). Moreover, increasing competition for natural resources, climate change, and resource scarcity are changing the business landscape for food and beverage companies in terms of input cost and availability (Grylles, 2023; Woodward, 2024).

In this regard, it will be instructive to highlight the vital roles of organisational capabilities such as leadership capability in improving innovation performance (Alahwamleh et al., 2022; Waleczek et al., 2019), particularly, its influence on process innovation.

Statement of the Problem

Nigeria is ranked as the largest food market in Africa and the citizens spend 73% of their income on food and beverage products (Flanders, 2020). Despite these potentials for a thriving food and beverage sector, underutilisation of existing capacity, as the prevalent case in Sub-Saharan Africa, remains a significant challenge in the industry (Adekoya, 2022; Ikpoto, 2022; Medase & Barasa, 2019). Specifically. Nnorom (2023) disclosed that capacity utilisation of food and beverage manufacturers fell to 49% as at the first half of 2023. Underutilised capacity is problematic for manufacturers, because it creates uncompetitive burdens such as higher processing cost, uncompetitive product pricing, reduced profit, and retards growth (Okunade, 2018; Seguin & Sweetland, 2014).

Underutilised capacity is indicative of a lack of process optimisation and a need for process innovation (Adeniran et al., 2024) directed by effective leadership capability (Li & Wang, 2021; Sheehan et al., 2020). Leadership capability is considered as an essential factor that facilitates innovation, because leaders are responsible for creating a congenial organisational climate for innovation by establishing the right organisational strategy, structure, culture, and compensation policies that motivate employee creativity (Ambrosini & Altintas, 2019).

Whereas innovation represents a critical strategic direction for process optimisation to enhance capacity utilisation, not much attention has been given to the influence of leadership capability on process innovation. Rather, most prior studies have emphasised the leadership and product innovation link (He et al., 2023; Wang et al., 2022). Moreover, it remains largely unclear whether leadership influences process innovation as extant studies have reported conflicting results (see Costa et al., 2023; Yao & Hao, 2022). The peace-meal approach to assessing leadership as a predictor of process innovation rather than as a unidimensional construct coupled with divergent contextual variables are limitations of prior studies (Ben-Oz & Greve, 2015; Hughes et al., 2018). Therefore, drawing from the core concept of leadership as influencing employees work behaviour and the food and beverage industry context in Nigeria, a developing economy, this study aims to analyse the leadership construct from the unidimensional standpoint to provide a fresh perspective to the lingering tension in this research trajectory.

Research Objective

To examine the influence of leadership capability on process innovation among food and beverage manufacturing companies in Lagos State.

Research Question

What is the influence of leadership capability on process innovation among food and beverage manufacturing companies in Lagos State?

Hypothesis

Leadership capability does not significantly influence process innovation among food and beverage manufacturing companies in Lagos State.

LITERATURE REVIEW

Leadership Capability

According to Park et al. (2017), the critical role of leadership in shaping employees' work attitude and organisational performance has been recognised in the literature. Generally, leadership is conceptualised as a trait, competence, process, role, and act to influence followers' or employees' actions towards a determined goal (Alblooshi et al., 2020; Aliekperova1 & Aliekperov, 2023; Dominiguez-Escrig et al. (2023; Tabassi & Bakar, 2011, as cited in Pham et al., 2022). Despite the variations in the definitions, these descriptions of leadership have at least three important implications. First, leadership is an ongoing process in organisations that involves an individual (leader) aiming to exercise goal-oriented influence over others. Second, the process involves subordinates or employees who enhance the leadership process by willfully subscribing to the leader's influence and formalise his authority. Third, leadership is aimed at accomplishing goals. Thus, influence is the common thread that runs through all the concepts of leadership capability.

The organisational leadership literature alludes to the contextual characteristics of leadership practice (Bass & Avolio, 1994; Costa et al., 2023). In this respect, extant literature is replete with diverse leadership styles which impact innovation strategies. Prominent leadership approaches with innovation-related impact in the literature include authoritarian, democratic, entrepreneurial, transformational, and transactional leadership styles (Hensellek et al., 2023; Jaqua & Jaqua, 2021; Nassani et al., 2024; Pham et al., 2022; Zheng et al., 2021).

The organisational capability and innovation literature suggests that leadership is vital to a firm's innovation performance, noting that through their actions, leaders can guide organisations towards becoming more innovative by providing strategic direction, mobilising resources, strengthening management practices, processes, structures and fostering a culture of change within organisations (Burton & Dickinger, 2025; Mai et al., 2022; Mokhber et al., 2017). Also, leaders promote continuous organisational learning and opportunity identification among employees (Chaithanapat et al., 2022; Owusu-Manu et al., 2018).

Process Innovation

Mooi et al. (2020) described process innovation as improvements in organisational processes or procedures a firm introduces in its operations. Similarly, Piening and Salge (2015) explains that it is an upgrade in a firm's supply chain, production, and administrative processes. This definition aligns with OECD (2005), which defined it as the adoption of a modernised production or delivery system, involving human capital, working methods, technological, equipment or software changes or a combination of changes in the outlined factors. Also, Suwignjo et al. (2022) defined process innovation as implementing a state-of-the-art production or delivery technique. These concepts of process innovation focused on the activities involved in process innovation but needed to recognise the purpose underpinning the changes.

In conceptualising process innovation, some authors integrated the purpose perspective. In this regard, it is conceptualised as fundamental alterations in organisational process involving novelty and value addition relative to extant practice (Mooi et al., 2020). Process innovation is described as novel changes to producing or delivering products that allow firms to significantly increase the value delivered to the stakeholders (Rajapathirana & Hui, 2018). Additionally, process innovation is defined as new elements introduced into an organisation's production or service operations—input materials, task specifications, work and information flow mechanisms, and equipment used to produce a product or render a service—to achieve lower costs and/or higher product quality (Damanpour et al., 2018; Reichstein & Salter, 2006).

Thus, process innovation is an internal focus on the elements that aids a firm's productivity. Its main focus is to modernise the firm's production and marketing procedure through implementing diverse process improvement mechanisms such as total quality management, lean production, or just-in-time production practices.

Theoretical Review

The core theme of contingency theory is that there is no best way to lead the organisation since different environments have different antecedents (Contandriopoulos et al., 2018) and these contextual exigencies shaped by macroeconomic factors affects the ability of the organisation to gain access to resources. Consequently, external environmental characteristics are the basis for managerial choices of organisational structures and control systems adoption. This study perceived a positive relationship between leadership as an organisational capability and innovation performance manifested in process innovation. From the lens of contingency theory, a strategic fit between organisational subsystems on the one hand and organisational system with the external climate on the other, enhances innovation and competitiveness. A conducive internal ambience facilitates and promotes innovation that engenders competitive advantage. Scholars have acknowledged that organisational capabilities influence innovation and market expansion.

Leadership Capability and Process Innovation

Recently, Costa et al. (2023) studied four leadership styles and their respective effect on firm innovation performance. The study involved 13,702 Portuguese firms who participated in the 2018 Portuguese Community Innovation Survey (CIS) of diverse innovative characteristics of enterprises. The econometrics logit analysis showed that autocratic and transactional leadership styles negatively impacted process innovation, while democratic and transformational leadership impacted process innovation positively.

Pham et al. (2022) reported that transformational leadership competencies positively and significantly affect process innovation. Their quantitative study involved a sample of 164 managers and consultants of Vietnamese construction firms. The statistical analysis techniques comprise the Shapiro-Wilk, one-sample Wilcoxon, and Kruscal-Wallis tests. Nasir et al. (2022) found that transformational leadership positively and significantly affects process innovation. The study is quantitatively designed using structural equation modelling and Smart-PLS to analyse cross-sectional data obtained by means of questionnaire from 129 ISO certified Pakistanis quoted textile firms. Additionally, using a cross-lagged research design, Sheehan et al. (2020) empirical work suggests that transformational leadership is positively and significantly related to process innovation. Their study used dyadic data from 124-unit leaders and 644 employees selected through a stratified sampling method of UK work units in the Dun and Bradstreet Global Reference Solution (GRS) Database. The study employed hierarchical regression analysis to examine collected data.

Moreover, Ashkevari and Ghasemi (2023) empirically suggest that strategic leadership significantly and positively influences process innovation. The study involved a sample of 190 experts and managers of the Iran Khodro Complex using a questionnaire as a survey instrument. The PLS-SEM technique was employed to analyse the collected data. Alameri et al. (2019) showed that empowering leadership style positively and significantly impacts process innovation performance. The study used PLS-SEM to analyse sampled cross-sectional data from UAE Police Officers.

The quantitative research by Meng (2023) suggests that process innovation is positively affected by transformational and transactional leadership styles. The 100 participants in the survey were knowledgeable in innovation procedures and leadership practices in the oil manufacturing industry. The study employed a 16-item innovation performance measure and the MLQ-5X full-range leadership survey as the research instruments. He et al. (2023) collected longitudinal data from all levels of managers of 224 enterprises based in Western China whose operations emit heavy pollutants and employed multiple regression as analytical tool. They found that environmental leadership significantly and positively affects green process innovation performance.

METHODOLOGY

Research Design

This study adopted survey research design to ascertain a causal association between leadership capability and process innovation. Cross-sectional data was collected from the sampled food and beverage manufacturing companies in Lagos State, using a validated questionnaire. The survey research method facilitates measure specification, data gathering and analysis, and empirical contribution to theory and practice (Abourokbah et al., 2023; Saunders, 2019). The use of survey research design is prominent in the literature (Ferreira et al., 2021; Otioma, 2022).

Population of the Study

The 672 food and beverage manufacturing companies in Lagos State listed on the Nigerian Directory as of November 2023 constituted the study's population. The choice of the target population was based on its critical role in Nigeria's economic growth. Besides, constant changes in consumer tastes and demands make innovation an inevitable survival and growth strategy for food and beverage manufacturing companies. Moreover, the food and beverage industry have a long history in Nigeria, spanning over 50 years and have experienced diverse changes in Nigeria's socio-economic climate, which qualifies it as a viable research context for this research trajectory. Table 3.1 shows the composition of the study's population.

Table 3.1: *Lagos-based food and beverage manufacturing companies' classification*

Classification	Number
Bakeries and Confectionaries	287
Distilleries	62
Food Processing Companies	102
Milk and Dairy Products	8
Sugar Manufacturing	3
Tobacco	1
Breweries	11
Flour Mills	14
Fruit Drinks and Juices	92
Soft Drinks, Beer and Alcoholic	41
Sweets and Beverages	13
Water, Spring and Bottled	38

Sample Frame

The study relied on prior studies (Le & Phong, 2023; Ode & Ayavoo, 2020) to purposively choose six of the Lagos-based food and beverage manufacturing companies quoted in the Nigerian Exchange Group (NGX) as its sample frame. Lagos State demography mimics that of Nigeria regarding the various income groups, lifestyles, consumer preferences for food and beverage products, and other ecosystem variables. Moreover, it has the highest concentration of quoted food and beverage manufacturing companies in Nigeria. In view of the study's aim to account for an organisational capability and context that drive innovation performance, sampling Lagos-based food and beverage manufacturing companies provide a suitable context for conducting this line of study in a developing economic environment.

Furthermore, the quoted companies constituting the study's sample frame were selected based on the notion that their listing on the Nigerian stock exchange suggests that they have the capacity to maximise shareholder's funds and possess the organisational capability under investigation. Also, being among the key manufacturers in their respective markets positions them as significant drivers of the industry's sustainability and growth (Flanders, 2020; KPMG, 2016). Their products are used not only as food but also as inputs for most companies in the food and beverage sector. Table 3.2 shows the list of companies in the study's sample frame. Respondents were drawn from the management staff of each company.

Table 3.2: *Selected food and beverage companies and managerial staff data*

Company	Number of Managerial Staff	Turnover
Nigerian Flour Mills Plc	930	832,810,561,000
Honeywell Flour Mills Plc	118	136,000,000,000
Dangote Sugar Refinery Plc	232	403,245,988,000
Bua Foods Plc	102	275,100,000,000
Guinness Nigeria Plc	470	206,822,127,000
Nigerian Breweries Plc	1,176	550,478,000,000
Total	3,028	

Sources. 2022 Annual Reports of Flour Mills of Nigeria Plc; Honeywell Flour Mills Plc; Dangote Sugar Refinery Plc; Bua Foods Plc; Guinness Nigeria Plc; Nigerian Breweries Plc

Sample Size and Sampling Technique

Based on the recommendation of Yamane (1967), this study's sample size was determined. The Yamene approach allows researchers to make inferences about the population based on the sampled data. The formula is:

$$n = \frac{N}{1 + N(e)^2}$$

Where:
n = Sample Size
N = Population = 3,028
e = Allowable error = 0.05
Hence,

$$\frac{3{,}028}{1 + 3{,}028\,(0.05)^2}$$

n = 353 respondents

The study adopted proportional and random sampling techniques using the number of the respective managerial staff as the basis for distributing the research instrument to each company (*see* Kassa & Raju, 2014). The proportional sampling method helps to establish a fair representation of the various clusters in the sample frame and population. Additionally, using random sampling approach removed selection bias as it afforded every manager the opportunity of being selected as a respondent. Thus, the sample derived from the combined technique could be referred to as representative of the population in every respect. Table 3.3 shows the proportionate allocation of the research instrument.

Table 3.3: *Proportional distribution of the research instrument*

Company	Number of Staff	Proportion	Allocated Questionnaire
Flour Mills of Nigeria Plc	930	30.71	108
Honeywell Flour Mills Plc	118	3.90	14
Bua Foods Plc	232	7.66	27
Dangote Sugar Refinery Plc	102	3.37	12
Nigerian Breweries Plc	470	15.52	55
Guinness Nigerian Plc	1,176	38.84	137
Total	3,028	100%	353

Method of Data Collection

The study's data was collected through a questionnaire titled "Organisational Capability and Innovation Performance Questionnaire." The questionnaire is preferred for quantitative studies as the data collection instrument because the respondents are enormous, and it permits anonymity and objectivity. The field survey involved a random administration of 353 copies of the questionnaire among all levels of managers of the sample frame at their respective workplaces. Whereas most prior studies ascribe opportunities sensing and seizing as well as recalibration of firms' resources base to top managers, it is important to note that mid-level and lower-level managers are also able to perceive emerging market opportunities (Sibindi, 2021**).**

Research Instrument

The questionnaire for this research was designed to capture respondents' demographic data and responses to closed ended questions relevant to the study's variables. The study variables were measured using validated scales reported in previous studies to have met or exceeded the necessary standards for loading, predictive power, reliability, and validity. All measures were reflective and unidimensional five-point Likert scales. The respondents were asked to indicate the extent to which they agree with the scale items (from 1 = strongly disagree to 5 = strongly agree). This study measured leadership capability as the extent to which management motivates and influences employees' productivity. The leadership capability measure, comprising of six items was a modification of validated measures used in prior research (Bass & Avolio, 1995). Based on recent empirical studies, process innovation was measured as a new and enhanced production method with four items adapted from Al-Jinini et al. (2019).

Model Specification

The equation can be explicitly represented in its disintegrated interaction model as

Hypothesis

$$PRC = f(LC)$$

$$PRC = b_0+b_1LC+e_i$$

RESULTS AND DISCUSSION

Structural and measurement model prediction was part of the data analysis in this study. As suggested by Liao et al. (2022), the study analysed leadership capability and process innovation among food and beverage manufacturing enterprises in Lagos State using significance levels, R-squared, path coefficients, and the bootstrapping approach applying 5000 bootstrap samples. According to Younas et al. (2022), the measurement model's elements and items should be reflective and the loading factors above 0.70. Table 4.2 and Figure 4.1 show that factor loadings for every measure of process innovation and leadership competence were significantly higher than the minimal cutoff of 0.70. The factor loading shows a respectable degree of

dependability, ranging from 0.719 to 0.858 and 0.737 to 0.844 for the variables. The instrument is legitimate and trustworthy if the degree of fitness satisfies the necessary criteria (Yu et al., 2022).
Moreover, the research instrument's construct reliability and convergent validity were assessed using Cronbach's alpha, composite reliability (CR), and average variance extracted (AVE) statistics generated through SMART PLS 3 Software. The literature prescribed the benchmark for these construct measures as above 0.70 for both Cronbach alpha and composite reliability (Hair et al., 2021: Sarstedt et al., 2016), while AVE is to be determined at 0.50 (Fornell & Larcker, 1981; Hair et al., 2019). The results of Cronbach's alpha coefficient, composite reliability (CR), and Average Variance Extracted (AVE) are presented in Table 4.1, showing that the study's instrument satisfied the prescribed benchmarks.

Table 4.1: *Construct validity and reliability*

	Loading	VIF	P value	AVE	Composite Reliability	Cronbach's Alpha
Constructs	≥ 0.70	<5.0	<.05	≥0.50	≥ 0.70	> 0.70
Leadership Capability (LC)				0.635	0.912	0.885
LC1	0.766	1.684	0.000			
LC2	0.737	1.741	0.000			
LC3	0.783	1.567	0.000			
LC4	0.827	1.491	0.000			
LC5	0.844	2.011	0.000			
LC6	0.819	2.321	0.000			
Process Innovation (PRC)				0.626	0.870	0.796
PRC1	0.858	1.905	0.000			
PRC2	0.816	1.684	0.000			
PRC3	0.719	2.055	0.000			
PRC4	0.764	1.832	0.000			

Additionally, the heterotrait-monotrait discriminant values were ascertained using the heterotrait-monotrait (HTMT) ratio to establish discriminant validity, presented in Table 4.2. It shows that every value is below the prescribed critical threshold of 0.85 (Hair et al., 2017). Discriminant validity is further supported by the average correlation between a heterotrait and a heteromethod, which is lower than between a monotrait and a heteromethod.

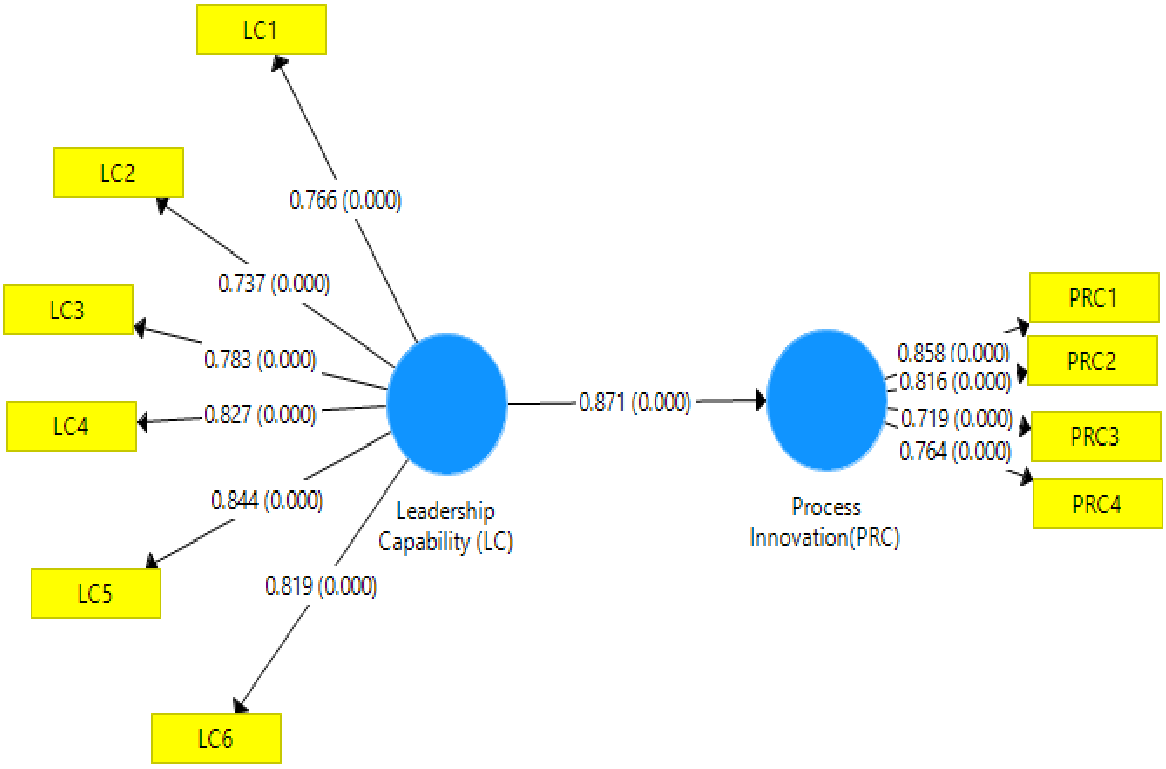
Table 4.2: *Discriminant validity*

	LC	PRC
LC		
PRC	0.654 [0.522; 0.762]	

Note. LC- Leadership Capability, PRC- Process Innovation

Furthermore, the multicollinearity of the indicators was evaluated using the variance inflation factor (VIF) statistics (Fornell & Bookstein, 1982). Whereas a perfect lack of collinearity is implied by a VIF score of one, a threshold of 5.0 is recommended as inconsequential (Shrestha, 2020). Table 4.2 reveals that the VIF values for each construct are far lower than the cautious 5.0 threshold, indicating that the study is devoid of CMB's influence

Fig 4.1



Path Co-efficient and P-values for Leadership Capability and Process Innovation

Evaluation of the Inner Structural Model and Fitness

The statistical significance of the inner structural model was assessed using path coefficients. In the PLS-SEM, bootstrapping is a critical tool for determining the degree of relevance. This study used the default bootstrapping procedure with 5000 subsamples. Table 4.3 and Figure 4.1 shows the internal structural model, which describes how leadership capability influences process innovation.

Table 4.3: *Model fit*

Model Fit Index	Measures	Benchmark	Model Value
Absolute Fit Index	SRMR	< 0.08	0.078
	Chi-Square	<3.0	2.381
	GFI	≥ 0.90	0.911
Incremental Fit Index	CFI	≥ 0.90	0.965
	NFI	≥ 0.90	0.932
Parsimony Fit Index	PCFI	≥ 0.50	0.676
	d_ULS	≥ 0.50	0.988
	d_G	≥ 0.50	0.576

Note. SRMR: Standardized Root Mean Squared Residual, d_ULS: the squared Euclidean distance, d_G: the geodesic distance, NFI: Normed Fit Index, CFI: Comparative Fit Index; PCFI: Parsimony Comparative Fit Index, GFI: Goodness of Fit Index

This study employed absolute fit measures, incremental fit measures, and parsimony fit measures as fit indicators to establish the model's fit (Hair et al., 2022). The absolute fit indices evaluate the extent to which the sample data and the model's a-priori estimations correspond (Schuberth et al., 2023). Also, the SRMR value of 0.078 for the leadership capability and process innovation connection, below the prescribed 0.08 gauge, expresses an acceptable fit. Moreover, the GFI was above the 0.90 limit at 0.911, which indicates a sufficient match. Similarly, the hypothetical model's CMIN/DF value of 2.381 signifies a good fit being less than the 3.0 reference point (Fornell & Larcker, 1981).
To assess the degree to which the tested model has outstripped a baseline model in which all variables are taken to be uncorrelated, incremental fit metrics were used. According to Tzafilkou et al. (2022), a threshold of 0.90 for both NFI and CFI indicates a satisfactory fit. Thus, the CFI and NFI scores of 0.965 and 0.932, respectively, shown in Table 4.3, attest to the appropriateness of this study's research model. Likewise, the parsimony fit measures of this study confirm its model fit. Parsimony fit indices make it possible to compare models and assess how well they fit samples belonging to the same population. The 0.676 score for the Parsimony Comparative Fit Index (PCFI) is higher than the 0.50 benchmark. Also, the SRMR and CMIN/DF values of 0.078 and 2.381 are within the acceptable range of 0.08 and 3.0, respectively (Fornell & Larcker, 1981).
This study's model fit also satisfies the greater than 0.90 requirements for NFI, GFI, and CFI criteria to establish a model's suitability. Furthermore, the d_ULS and d-G values greater than 0.50 as model fit parameters (Hair et al., 2022), were satisfactory at 0.988 and 0.576, respectively. Thus, the model fit indices for the measurement model were satisfactory and above the specified criterion, as shown in Table 4.3.

Predictive Relevance and Effect Size
Based on the prescription of Cheah et al. (2021), which defined predictive relevance as Q2 values greater than 0, the Q2 standard was used to assess the predictive usefulness of the metrics constructions and data points of indicators in PLS-SEM. This study's Q2 value for process innovation was over zero, at 0.455. The score affirms that predictive validity for these characteristics in the calculated PLS path model subsists. Moreover, this study adopted the f-square method to evaluate the effect size. Fornell and Larcker (1981) recommended the following basis for interpreting f-square values: >= 0.02 is small, >= 0.15 is medium, and >= 0.35 is large. Accordingly, the computed 3.130 f-square value for process innovation demonstrates a significant sample effect and practical significance (Cohen, 1988, as cited in AlWahaibi et al., 2020).

Table 4.4: *Path co-efficient for leadership capability and process innovation*

Variables and Cross Loading	Path Co-efficient	R-Squared	Std. Dev	T-Statistic	P-value
Leadership Capability – Process Innovation	0.871	0.758	0.022	38.790	0.000

Table 4.4 shows the leadership capability and process innovation path co-efficient analysis, portraying the link between leadership capability and process innovation. The path coefficient of 0.871 suggests a considerable positive correlation between these two variables, indicating a close association between gains in process innovation through leadership competency enhancements.

Discussion

Based on the strong path coefficient (0.871), high R-squared value (0.758), substantial t-statistic (38.790), and p-value (0.000), the null hypothesis which states that leadership capability does not significantly influence process innovation among food and beverage manufacturing companies in Lagos State was rejected. In contrast, the alternative hypothesis that leadership capability significantly influences process innovation was accepted. It implies that leadership competence is an essential driver of process innovation, and organisations desirous of enhancing cost-effectiveness and product quality assurance mechanisms should prioritise the growth and strengthening of their leadership skills.

The path coefficient result shows that the explanatory power (R^2) of the influence of leadership capability on process innovation is 0.758. It implies that as an organisational capability, leadership accounts for 75.8% of the variance in process innovation. The determined explanatory power suggests that leadership competence is a critical resource for promoting creativity and innovation in organisational processes to establish an effective and efficient manufacturing and related process. The standard deviation of 0.022 also suggests that the route coefficient is stable. This low standard deviation implies that the data points are tightly packed around the mean route coefficient, indicating consistency and reliability in the observed link between leadership skill and process innovation.

The t-statistic of 38.790 is substantial, indicating that the relationship between leadership capacity and process innovation is statistically significant. It also indicates that the observed link is unlikely to occur by chance. Similarly, the p-value of 0.000 provides strong evidence against the null hypothesis, confirming that the positive association between leadership skill and process innovation is statistically significant and predictable. Thus, Table 4.4 shows a strong and statistically significant positive association between leadership capability and process innovation.

Leadership is a critical element that influences different aspects of employees' work behaviour and organisational performance. Its influence is predicated on the idea that leaders employ their authority to shape organisational policies, structure, innovative culture, and reward systems in ways that encourage employees to imbibe innovation-enhancing behaviours (Cortes & Herrmann, 2021; Wang et al., 2022). In addition, apart from providing the needed inspiration and trust to employees to rethink extant processes to modernise them, strategic leaders encourage knowledge sharing among workers (Chaithanapat et al., 2022).

This study's findings are in consonance with the preceding assertions and recent empirical persuasions about leadership's vital role in process innovation, noting that the companies' leaders encourage an environment that fosters cooperation and managerial support to employees. Rasheed et al. (2021) showed that leadership characteristics such as vision, inspirational communication, supportive behaviour, intellectual stimulation and personal recognition influence employees' voice behaviours, contributing to process innovation. They also empirically agreed that leaders motivate and support employees to challenge the status quo and share new ideas and suggestions to bring improvements and innovations in process technologies. Similarly, Ashkevari and Ghasemi (2023) empirically suggested that strategic leadership significantly and positively influences process innovation. Nevertheless, the findings of some prior studies such as Costa et al. (2023), Li and Wang (2021), and Yao and Hao (2023) showed that not all leadership approaches impact process innovation positively. The piece-meal approaches of these studies and contextual factors may account for the divergence of their findings (Ben-Oz & Greve, 2015; Hughes et al., 2018).

Thus, in line with the objective of this study and the related research question, the influence of leadership capability on process innovation was examined, and the empirical result indicated that the relationship between these constructs among the selected food and beverage manufacturing companies is significantly positive. The outcome of this study aligns with the results of some prior studies to underscore leadership capability as a vital facilitator of process innovation.

CONCLUSION AND RECOMMENDATION

This study established the pervasiveness of process innovations in the selected food and beverage manufacturing companies and how organisational capability in the form of leadership ability, impact process innovation as a measure of innovation performance. The quest for process innovation is one of the competitive means the surveyed companies have engaged in fostering cost-effective operations to deliver novel quality products to meet customer needs and enable the companies to survive and sustain growth amidst the vagaries of the business environment. Results from the analysed data further revealed that leadership capability is an integral part of organisational capabilities that help to establish an organisational setting that promotes innovation-related activities. Leaders establish the organisational culture, strategy, structure, reward systems, and resources and motivate employee creativity. Besides, the path analysis indicated that leadership capability positively related to process innovation. The research model was found to be explanatory of the study's proposed relationships and was statistically significant ($p<.01$).

Leadership capability was found to have a significant positive influence on process innovation. Therefore, a leadership approach that encourages innovative processes to engender effective and efficient manufacturing and related operational activities can help organisations overcome survival and sustainable growth challenges imposed by uncertainties associated with constant changes in the business environment. Consequently, the study recommends that leader-managers at all levels should grow and strengthen their leadership skills by establishing guidelines, strategically create work groups, and demonstrate leadership support.

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