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Effect of innovation management practices on competitive advantage of brewery companies in South-East Nigeria

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Abstract

The study examined the effect of innovation management practices on the competitive advantage of brewery companies in southeast Nigeria. This study employed a cross-sectional survey research design; the population consisted of 441 participants and a sample size of 210 employees. The study used a structured questionnaire, and the instrument's reliability was assessed using a retest technique. The data collected from the respondents was analysed using descriptive and inferential statistical approaches. Findings indicated that innovation strategy ($\beta = 0.508, p < 0.05$), innovation culture ($\beta = 0.235, p < 0.05$), and cross-functional integration ($\beta = 0.180, p < 0.05$) have a positive effect on competitive advantage. The study concluded that by excelling in innovation management practices, organisations can significantly enhance their competitive advantage, driving long-term growth and success. The study recommended that encouraging collaboration across different departments can positively impact competitive advantage, suggesting that firms should implement structures and processes that facilitate effective cross-functional teamwork.

Keywords: Competitive advantage, innovation strategy, innovation management practices, South-East Nigeria

1. Introduction

In today's dynamic and rapidly evolving business environment, the ability to innovate has become a critical determinant of competitive advantage for organizations across various industries. For brewery companies in southeast Nigeria, the imperative to adopt and effectively manage innovation practices is particularly pressing, given the increasing competition and changing consumer preferences in the region. Effective innovation management strategies can deeply influence an organization's culture, enabling it to successfully adapt to evolving environmental conditions. Organizations must adapt their behaviour in new ways that are in line with these changes and efficiently manage the conditions they encounter. In a dynamic context, innovation functions as a potent and efficient managerial instrument for supervisors (Bayhan & Korkmaz, 2021) ^[4]. Innovation management practices encompass a broad range of activities and strategies designed to foster creativity, streamline the development of new products, and enhance overall organizational performance. These practices are critical for brewery companies looking to differentiate themselves in a competitive marketplace, adapt to market changes, and meet their customers' evolving needs. This study focuses on three key dimensions of innovation management: innovation strategy, innovation culture, and cross-functional integration. Innovation management provides a variety of methods and models to efficiently implement innovation (Hirte & Roth, 2018) ^[24]. Efficiently overseeing innovation is crucial for preserving an organization's standing, enticing an appealing clientele, and attaining a competitive edge in the market (Haleem *et al.*, 2018) ^[22]. Systematic innovation is necessary at every level of the organization, with the goal of directing innovation towards the organization. Gaining insight into innovation management processes provides fresh perspectives on understanding an organization's dynamics. As a result, it is critical for organizations to evaluate and understand the concept of innovation management (Morente & Ferràs, 2017) ^[36]. To effectively participate in innovation activities, it is necessary to adopt management models that establish organizational procedures to take advantage of opportunities for innovation

(Bagno *et al.*, 2017) ^[2]. A company's growth and success are contingent upon the efficient administration of innovation within a competitive environment (Taghizadeh *et al.*, 2017) ^[47]. Innovation strategy involves the deliberate planning and implementation of initiatives that drive innovation within an organization. This includes setting clear objectives, allocating resources, and developing processes that encourage continuous improvement and the development of new products or services. For brewery companies, a robust innovation strategy can lead to the creation of unique products, improved production processes, and enhanced market positioning. Innovation culture encompasses the values, beliefs, and behaviors that foster and facilitate innovation within an organization. A strong innovation culture encourages employees to think creatively, take risks, and collaborate across different functions. In the context of brewery companies in southeast Nigeria, fostering an innovation culture can result in increased employee engagement, higher levels of creativity, and a greater propensity to innovate. An innovative culture refers to a unique set of rules and practices that facilitate the natural occurrence of innovation within an organization and encourage its development at all levels. The key features encompass visionary leaders, proficient managers, collaborative teams, and exceptional individuals. Furthermore, the organization creates conducive environments for creativity and facilitates numerous effortless external linkages to foster innovation. These attributes stem from the capacity to innovate and explore, encompassing activities such as observation, inquiry, networking, experimentation, and partnership formation. In order to establish a forward-thinking organizational culture, it is necessary to expand these competencies across the entire organization (Davies & Buisine, 2018) ^[12]. In order to succeed in the current competitive corporate environment, effective management of innovation has become essential (Echeverri *et al.*, 2021) ^[15]. In order to remain competitive in the face of rapid technological advancements and changing consumer preferences, businesses must regularly test and adopt new strategies (Tidblad *et al.*, 2021) ^[49]. Nevertheless, staying abreast of recent advancements in order to successfully handle innovation might be challenging (Mestanza-Ramón *et al.*, 2019) ^[34]. Hence, it is imperative for firms to adopt efficient techniques for managing innovation (Idris & Durmuşolu, 2021) ^[25]. Cross-functional integration is the collaboration and coordination of various departments and functions within an organization to achieve common innovation goals. Leveraging diverse perspectives and expertise through effective cross-functional integration leads to more comprehensive and effective innovation outcomes. For brewery companies, this can mean better alignment between marketing, production, and research and development, ultimately enhancing their competitive edge. Facilitating collaboration between different departments improves coordination and production (Patrício & Franco, 2022) ^[40]. Leaders are essential in promoting innovative management practices through effective communication of a distinct vision for innovation, building a culture that encourages taking risks and experimenting, allocating resources for innovation, offering support and direction, and facilitating cooperation across different functions. Effective leadership activities are crucial for the successful implementation of innovation management methods inside organizations

(Strong *et al.*, 2022) ^[46]. The aim of the study is to examine the effect of innovation management practices on competitive advantage of brewery companies in southeast Nigeria. This study also examined the effect of the three dimensions of innovation management practices-innovation strategy, innovation culture, and cross-functional integration-on the competitive advantage of brewery companies in southeast Nigeria. By understanding the impact of these practices, brewery companies can develop more effective strategies to enhance their innovation capabilities and secure a stronger position in the market.

2. Literature Review

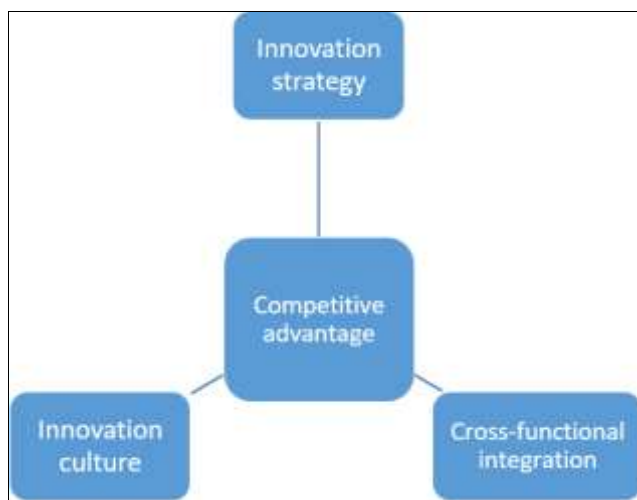
2.1 Conceptual Review

2.1.1 Innovation Management Practices

Innovation management practices refer to the systematic processes and methodologies employed by organizations to foster, develop, and implement new ideas, products, services, or processes. These practices include planning, organizing, leading, and controlling the innovation activities within an organization. The goal of innovation management is to create an environment that encourages creativity, supports risk-taking, and efficiently manages the development and commercialization of innovations to achieve competitive advantage. Melendez *et al.* (2019) ^[33] emphasise that innovation management is a technique that enables firms to shape the innovation process. It facilitates the generation of new ideas, processes, and products in a methodical manner, leading to a positive impact on company performance. Innovation management is a complex process that requires the involvement of multiple hierarchical levels and knowledge domains, and it should be integrated throughout the entire organization (Zen *et al.* 2017) ^[51]. The literature on innovation management serves to fill the knowledge gap between the management of technology and its connection to strategic management. This connection is crucial for a company's long-term performance and survival (Espinosa-Cristia, 2019) ^[16]. In order to maintain competitiveness and foster economic progress, it is essential to possess the ability to innovate (Ikenami *et al.* 2016) ^[27]. The pursuit of differentiations that can provide enhanced products and services for the market, resulting in sustained competitive advantages, is closely linked to this concept (Vilha, 2010) ^[50]. The culture of innovation is acknowledged as a beneficial organizational strategy for ensuring long-term success in rapidly changing markets (Hidalgo & Albors, 2008) ^[23]. Organizations who are able to consistently innovate will have the edge in generating and sustaining competitiveness. However, many corporations fail to recognize this fact (Zen *et al.* 2017) ^[51]. Successful inventions typically arise from a deliberate and purposeful exploration of prospects, rather than relying solely on a stroke of brilliance. Therefore, it is important to minimise reliance on chance. Innovation is a concept that is widely applied and can be found in various contexts (Kahn, 2018) ^[28].

The understanding of the notion of innovation can be approached from three primary perspectives: the result or outcome, the process, and the attitude (Kahn, 2018) ^[28]. Innovation, when viewed as an outcome, focuses on the end result, typically associated with the introduction of novel products and services. Research on innovation primarily focuses on examining the external and internal factors that contribute to an organization's ability to innovate

(Damanpour & Aravind, 2012) ^[11]. The process of innovation involves the correct organization and management of innovation initiatives. Process models involve the use of innovation patterns, phases (Origin, development, commercialization, dissemination, adoption, or implementation), and checkpoints to create a new product development (NPD) process (Damanpour & Aravind, 2012) ^[11]. The concept of innovation as a mentality emphasises the internalisation of innovation by individuals and the cultivation of a supportive culture across the organization. When organizations engage in innovation, they often require the collaboration of several types of individuals. Figure 1 is an illustration of the three dimensions of innovation management practices-innovation strategy, innovation culture, and cross-functional integration.



Source: Desk research 2024

Fig 1: Dimensions of Innovation Management Practices

2.1.2 Innovation Strategy (IS)

Innovation strategy is a deliberate and structured approach to align an organization's innovation activities with its overall business goals and objectives. It involves setting clear innovation goals, allocating resources, and defining processes and metrics to track innovation efforts. An effective innovation strategy ensures that the organization focuses on the right opportunities, leverages its strengths, and mitigates risks associated with innovation. It acts as a roadmap for driving sustained innovation and maintaining competitiveness. Multiple researches have confirmed that organisations have the ability to adopt diverse methods in order to innovate (Cruz-Cazares *et al.* 2010; Goedhuysa & Veugelers, 2012) ^[9, 21]. By adopting an internal innovation approach, companies bring their own research and development efforts in-house and proceed to develop, manufacture, and distribute their innovations internally (Chesbrough, 2017) ^[7]. In a closed innovation model, corporations rely on their internal personnel to develop and provide useful breakthroughs. In addition, Feller *et al.* (2009) ^[17] asserted that companies tend to favour an internal innovation strategy due to its greater ease of control. Managers possess knowledge about the resources and personnel of the company, enabling them to have a deeper understanding of the firm's operations and its internal dynamics. Alternatively, companies can adopt an external innovation strategy, which involves acquiring existing technologies from the market, cooperating with external parties, or recruiting individuals with expertise in the

relevant industry (Díaz-Díaz & de Saa-Pérez, 2014) ^[14]. This approach maximizes the utilization of external concepts and avenues within the organization (Chesbrough, 2017) ^[7]. Companies that employ external innovation strategies engage in collaborations with a diverse array of partners, including competitors, suppliers, clients or consumers, consultants, universities, and knowledge institutions in various geographic areas. These partnerships are established to facilitate and enhance their innovation efforts. By looking beyond the organization, individuals could tap into a vast pool of information that is spread across the globe (Saebi & Foss, 2015) ^[44]. Outsourcing research and development (R&D) can reduce the time required for internal development and provide access to more suitable external sources of fundamental research (Díaz-Díaz & de Saa-Pérez, 2014) ^[14]. When firms decide to use an external strategy, they need take into account many aspects like unpredictable outcomes, expenses and risks associated with an internal strategy, the advantages of economies of scale, the utilization of resources, technological expertise, production capacity, and management capability (Feller *et al.* 2009) ^[17]. Innovation is an essential prerequisite for developing countries to thrive economically, reduce poverty, and narrow the gap with middle and high-income economies (OECD, 2012) ^[38].

2.1.3 Innovation Culture (IC)

Innovation culture is the set of shared values, beliefs, norms, and practices within an organization that support and encourage continuous innovation. An optimistic organizational culture that fosters inventive products and services has the potential to eradicate shortcomings and empower organizations to respond favourably to evolving market conditions. Effective management of innovation is crucial for strengthening organizational capabilities. When implementing a new innovation strategy, it is essential to guarantee that staff are united and completely embrace the new approach in order to successfully complete the internal adaption process. Managers have a crucial part in this process as they motivate staff to endorse innovation and exhibit a clear vision. Organizational culture is contingent upon its presence inside a discernible entity, characterized by numerous individuals engaging with one another to achieve a certain objective within their established setting (Choi, Ingram, & Han, 2023) ^[8]. Brettel and Cleven (2011) ^[5] describe innovation culture as the extent to which organizations have a natural inclination to consistently learn and generate knowledge in order to identify and address discrepancies between market demands and the firm's current offerings. Corporate culture can hinder the implementation of innovation if it does not provide support for it (O'Regan & Ghobadian, 2005) ^[37]. Organizations that undergo a transformation into innovative firms establish business environments that cultivate and encourage innovative cultures. Fostering such cultures enhances the proficiency of employees, since innovations produce outcomes through efficient innovation management. In order to fully leverage the advantages of innovation activities, firms must integrate innovation management as a fundamental component of their company strategy. Creating a culture of creativity necessitates developing groundbreaking innovations and removing established bureaucratic structures inside an organization. Every essential breakthrough and alteration helps to the

development of robust and innovative organizational cultures, which in turn enable efficient strategic management by creating and executing cutting-edge concepts. Innovation management and the cultivation of innovative organizational cultures are essential factors in developing the human resource structures of organizations. In a similar vein, Damanpour (1992) ^[10] discovered that the introduction of new cultural practices by major corporations had a notable and beneficial effect on their overall performance. Bandera, Eminet, Passerini, and Pon (2018) ^[3] conducted a comparative analysis of the cultural norms in France and the United States. Their findings indicate that corporate culture significantly influences the development and success of organizations. Atuahene-Gima (1996) ^[1] reported the findings of a study that compared the innovation efforts of service firms and manufacturing firms in Australia. Both the service and manufacturing firms were discovered to prioritise enhancing innovation. Nevertheless, the significance of these characteristics varied based on the company's nature. Moreover, the manufacturing business is more prone to product innovation, whereas service organizations primarily prioritise service innovation. In addition to the factors mentioned by Schertlin (2018) ^[45], there are several other elements that should be taken into account when evaluating innovation culture. These include effectively communicating the intention to innovate, providing incentives and rewards for innovative behaviour, establishing infrastructure for sharing ideas, knowledge, and addressing problems, considering employee interests, fostering an environment that encourages creativity, offering flexibility in work arrangements, and appropriately managing mistakes.

2.1.4 Cross-Functional Integration (CFI)

Cross-functional integration involves the collaboration and coordination of different departments and functions within an organization to achieve common innovation goals. This integration ensures that diverse perspectives and expertise are brought together, leading to more comprehensive and effective innovation outcomes. Effective cross-functional integration enhances communication, reduces silos, and fosters teamwork, enabling the organization to leverage its collective knowledge and skills to drive innovation. Lee (2020) ^[32] states that when organizations foster collaboration across functional divisions, hidden costs arise due to the norms, cultures, and work practices of each department. Integration is contingent upon team boundary bridging actions and the presence of strong team integration and relationships. Cross-functional integration (CFI) is a strategy that enhances responsiveness and facilitates the delivery of customer value (Oviedo *et al.*, 2021) ^[39]. Frankel and Mollenkopf (2015) ^[19] defined CFI as a process of interdepartmental contact and collaboration, where diverse departments cooperate with each other to achieve outcomes that are mutually acceptable for their respective organizations. Pellathy *et al.* (2019) ^[41] provided a definition of cross-functional integration (CFI) as a continuous process of collaboration, coordination, and communication. This process involves the various internal functions responsible for managing a company's supply chain working together to optimise outcomes for both the company and its external exchange partners. In a similar vein, Freitas *et al.* (2020) ^[20] and Poberschnigg *et al.* (2020) ^[43] expanded on the factors of CFI integration originally proposed by Ferreira *et al.*

(2019) ^[18]. They posited that integration factors serve as mechanisms that foster collaboration among functions, encompassing elements such as joint planning, mutual willingness to cooperate, trust, cross-functional meetings, information sharing, cross-functional teams, and communication, among others.

2.2 Theoretical Review

2.2.1 Resource-Based View (RBV) Theory

The Resource-Based View (RBV) theory, developed primarily by Jay Barney in the 1990s, posits that a firm's sustainable competitive advantage is derived from its ability to acquire and manage valuable, rare, inimitable, and non-substitutable (VRIN) resources. This theory shifts the focus from the external environment (such as market position and industry structure) to the internal resources and capabilities of the firm. The key concepts of this theory are:

1. **Valuable Resources:** These are resources that enable a firm to implement strategies that improve its efficiency and effectiveness. They help in exploiting opportunities and neutralizing threats.
2. **Rare Resources:** These resources are not widely possessed by competitors, making them unique and scarce within the industry.
3. **Inimitable Resources:** Resources that cannot be easily replicated or imitated by competitors. This inimitability can stem from unique historical conditions, causal ambiguity, or social complexity.
4. **Non-Substitutable Resources:** Resources that cannot be replaced by other resources or capabilities that provide similar value.

In the context of brewery companies in southeast Nigeria, RBV suggests that competitive advantage can be achieved and sustained through the effective management of unique and valuable resources such as proprietary brewing techniques, brand reputation, skilled workforce, and a robust distribution network.

2.2.2 Dynamic Capabilities Theory

The Dynamic Capabilities Theory, introduced by David Teece, Gary Pisano, and Amy Shuen in the 1990s, builds on the RBV by focusing on a firm's ability to integrate, build, and reconfigure internal and external competencies to address rapidly changing environments. It emphasizes the importance of being able to adapt and renew resources and capabilities over time. The key concepts of this theory are:

1. **Sensing Opportunities and Threats:** The ability to identify and assess changes in the external environment that could impact the firm.
2. **Seizing Opportunities:** The capability to mobilize resources to capture value from identified opportunities, including making strategic decisions and investments.
3. **Transforming/Reconfiguring Resources:** The ability to reconfigure and renew the firm's resource base to adapt to changing market conditions, ensuring long-term competitiveness.

For brewery companies in southeast Nigeria, dynamic capabilities could involve adapting brewing processes to changing consumer preferences, leveraging technology to improve production efficiency, or reconfiguring supply chains to respond to market disruptions. The focus is on continuous improvement and flexibility.

2.3 Empirical Review

Kumar, Tentu, and Rao (2024) ^[31] investigated the impact of innovation management strategies on the success of Incubators and the businesses they support in the State of Andhra Pradesh. The data was mostly gathered via a questionnaire, with the participation of 46 Incubators and 50 Startups from AP. The study revealed that innovation management techniques significantly influence the performance of incubators and startups.

Bayhan and Korkmaz (2021) ^[4] examined innovation management and the presence of an innovative organizational culture within logistics companies in city of Mersin. Data was gathered through surveys with 200 white-collar employees employed in logistics enterprises operating in Mersin, Turkey, and implementing creative management strategies. The acquired data was analysed using the SPSS 20.0 and AMOS 24.0 software. The result revealed a strong and positive correlation between the management of innovation and the development of an innovative organizational culture.

Phung, Tran, Vermeulen, and Knoblen (2021) ^[42] examined the impact of internal and external innovation strategies on process innovation in Vietnamese companies. The data were gathered with a stratified random sampling technique. The findings indicate that the presence of an innovation strategy positively impacts innovation, irrespective of whether the plan is implemented internally or outside. Internal and external strategies have been shown to be substitutes rather than complements. Nevertheless, the internal method appears to be the most advantageous. Inadequate institutional frameworks further enhance the significance of internal strategies, while robust institutional frameworks promote exterior strategies.

Koyluoglu and Dogan (2021) ^[29] investigated the influence of innovation strategies on the business performance of high technology enterprises in Turkey. The study conducted a survey on a sample of 346 managers from enterprises operating in Turkey and using advanced technology. The collected data were analysed using the JAMOVI and SPSS 26.0 software programmes. The empirical analysis employed exploratory factor analysis, confirmatory factor analysis, Pearson correlation, and regression analysis approaches. The findings indicate that implementing innovative techniques has a positive impact on corporate success. To clarify, a forward-thinking approach has a positive impact on the performance of organizations in terms of their products, customers, employees, finances, and processes. However, it has been found that both future-oriented strategy and risk-oriented strategy do not have a positive impact on the product, customer-based, employee-based, financial, and process performances of organizations. Moreover, aggressive, analytical, defensive, proactive, and risk-oriented techniques seem to be ineffectual in enhancing process performance. Strategies that are analytical, defensive, future-oriented, and proactive have a positive impact on the performance of products, customer satisfaction, and the financial performance of enterprises. It was concluded that innovation strategies had a significant impact on both customer-based performance ($R^2=0.687$) and financial performance ($R^2=0.701$) of firms.

Di (2022) examined the optimal strategies for effectively managing innovation in a dynamic and evolving company landscape. This study employed a blend of qualitative interviews conducted with business leaders and supervisors,

as well as a quantitative survey administered to firm staff. The qualitative data reveals a number of effective strategies for managing innovation, such as consistently monitoring the external environment, fostering collaboration and teamwork across different functions, being adaptable and flexible, having a well-defined innovation strategy and vision, being willing to take risks and experiment, effectively allocating and managing resources, receiving support and commitment from leadership, prioritizing innovation that is customer-focused, and embracing the process of digital transformation. The quantitative survey data indicates that although most organizations possess formal innovation strategies and foster innovation-friendly cultures, there is still potential for enhancement in terms of establishing formal innovation processes, allocating dedicated resources, implementing formal metrics, and fostering collaborations with external partners. Furthermore, the poll findings indicate a direct correlation between creative management methods and specific leadership characteristics. Leaders who effectively articulate a distinct vision for fostering innovation, promote a willingness to take risks and engage in experimentation, allocate resources specifically for innovation, offer assistance and guidance, and foster collaboration across different departments are more likely to successfully implement and manage innovation practices within their organizations. This study's conclusions offer valuable insights and recommendations for organizations to improve their innovation management strategies and stay competitive in a rapidly changing business environment. Organizations can successfully overcome innovative difficulties and achieve long-term growth and success by implementing the recognized best practices and demonstrating appropriate leadership behaviours.

Chen (2022) ^[6] investigated the effects of cross-functional integration (CFI) between production and marketing on a firm's build-to-order (BTO) competitiveness, marketing performance (MP), and financial performance (FP). An empirical investigation is conducted using the structural equation modelling approach. Based on survey data acquired from Chinese manufacturing enterprises, six hypotheses are formulated and subsequently evaluated. The survey data demonstrates that the integration of production and marketing (PMI) enhances the competitiveness of build-to-order (BTO) and market performance (MP). Additionally, BTO competitiveness (BTOC) has a favourable influence on marketing outcomes, which subsequently influences a firm's financial performance (FP). The findings demonstrate that the integration of production and marketing, as measured by the CFI, is a successful method for implementing the build-to-order (BTO) manufacturing strategy and enhancing overall organizational performance.

Miller, Thomas, and Roeller (2020) ^[35] investigated the processes of innovation management and sustainable iterative circles using an applied integrative method. Data were gathered via semi-structured interviews conducted in manufacturing organizations within the automobile industry. Senior functional managers were interviewed to elucidate the implementation of sustainable, iterative development cycles. The data was analysed using thematic analysis. Sustainable, iterative development circles have successfully addressed the limitations of traditional linear development approaches, which are constrained by a fixed sequence of

steps. While traditional approaches involve key business functions in a structured manner, iterative circles enable more adaptable product development methods that better align with the changing needs of customers.

Tang, Park, Agarwal, and Liu (2020) [48] conducted a study to examine the impact of innovation culture, technological capacity, and organization size on the performance of SMEs in China. The study utilized data from 1124 SMEs in China and employed regression analysis to examine the hypotheses. The study revealed a significant positive correlation between technological competency and organization size with the success of SMEs. The study revealed a positive correlation between technological capability and firm performance in the manufacturing industry, but not in the service industry. Conversely, the study found a positive correlation between innovation culture and firm performance in the service industry, but not in the manufacturing industry.

3. Materials and Methods

A research design approach facilitates the efficient collection of large amounts of data at a low cost, while also allowing for in-depth analysis of the specific elements within the population under investigation. It enables the production of accurate data pertaining to the study. This study employed a cross-sectional survey research design as its chosen approach. This technique was selected due to the facilitation of the researcher's utilization of questionnaires to assess public opinion during a certain time frame. The most effective approach for conducting scientific investigations is to utilize a cross-sectional survey study design method.

3.1 Population and sample size

The study's population consisted of all the staff members from five separate brewery manufacturing companies located in South-East Nigeria. The survey included employees from Nigeria Breweries Plc, Nigerian Bottling Company Ltd, Guinness Nigeria Plc, Intafact Beverages Limited, and International Breweries Plc. The study's population consisted of 441 participants, to whom the research findings were extrapolated. In this research, the suitable sample size for representing the population was found using Taro Yamen's formula for sample size. Hence, the study used a sample size of 210 employees.

3.2 Method of Data Collection

The data for this study was collected directly from primary sources. The study used a structured questionnaire as its research instrument. Participants were instructed to evaluate their responses using a five-point Likert scale, ranging from strongly disagrees to strongly agree. Participants were provided with hand-delivered copies of the verified survey. Prior to being retrieved for analysis, duplicate copies of the questionnaire were distributed to the respondents for duration of one week. Content validity was employed for the study. Researchers usually agree that a measure is considered valid when it adequately covers all characteristics of the variables being investigated. The instrument's reliability was assessed using a test-retest technique. The Cronbach Alpha Index was employed to compute the questionnaire's reliability. When designing a reliable tool, it is crucial for the scores on identical items to exhibit internal consistency while also offering distinct information. Table 1 demonstrates that all of the items

achieved favourable reliable ratings, as indicated by values exceeding 0.6. This surpasses the recommended Cronbach Alpha value suggested by Malhotra (2004) [52], which ensures the acceptance of the model's reliability evaluation.

Table 1: Reliability test for all items in the Questionnaire

S/N	Dimensions	Number of items	Alpha (α) Value
1	Innovation Strategy	5	0.741
2	Innovation Culture	5	0.734
3	Cross-Functional Integration	5	0.748
4	Competitive Advantage	5	0.744

Source: Field Survey, 2024.

3.3 Data Analysis Techniques

The data collected from the respondents was analysed using descriptive and inferential statistical approaches to arrive at a result. The descriptive statistics used frequencies and basic percentages, while the inferential statistical approach of correlation analysis was employed to quantify the extent of the relationship between the variables being studied. Regression analysis can be employed to assess the statistical significance of the variables. This study used the SPSS for Windows software.

$$CA = f(IS, IC, CFI)$$

$$CA = \beta_0 + \beta_1 IS + \beta_2 IC + \beta_3 CFI + \epsilon$$

Where:

CA= Competitive Advantage

IS = Innovation Strategy

IC = Innovation Culture

CFI = Cross-Functional Integration

4. Results of analyzed data

A total of 210 questionnaires were distributed, out of which 199 were returned. Among the returned questionnaires, 9 were found to be incomplete, leaving us with a valuable set of 190 fully completed questionnaires that can be effectively used. Consequently, the analysis was conducted using the data from a response rate of 90%.

Table 2: Analysis of Respondents Profile

S/N	Variables	Frequency	Ratio (%)
1	Gender:		
	Male	71	37
	Female	119	63
2	Age Range:		
	Below 30 years	58	31
	31-40 years	73	38
	41years and above	59	31
3	Marital Status:		
	Single	78	41
	Married	112	59
4	Educational Qualification:		
	SSCE	29	15
	OND/NCE	64	34
	HND/B.Sc	88	46
	Postgraduate Degree	9	5

Source: Field Survey, 2024.

Table 2 showed that 37% of the sample respondents were males while 63% were females. The age bracket of the respondents indicated that 31% of the respondents were

below 30 years of age; 38% of the respondents' falls within the age bracket of 31-40 years of age, while 31% of the respondents were above 41 years of age and above. The marital composition of the respondents showed that; 41% of the sample respondents were single, while 59% other respondents were married. The educational background of

the respondents showed that 15% of the respondents were SSCE holders, 34% of the respondents were OND/NCE holders, and 46% of the respondents were HND/B.Sc. holders, while 5% of the other respondents were postgraduate degree holders.

Table 3: Inter-Correlations for Study Variables

S/N	Variables	IS	IC	CFI	CA	N
1.	Innovation strategy	1				190
2.	Innovation culture	.762**	1			190
3.	Cross-functional integration	.674**	.616**	1		190
4.	Competitive advantage	.808**	.733**	.667**	1	190

** Correlation is significant at the 0.01 level (2-tailed).

Source: Field Survey, 2024.

Table 3 showed that innovation strategy has a strong positive correlation with competitive advantage (0.808). Innovation culture has a strong positive correlation with

competitive advantage (0.733). Cross-functional integration has a strong positive correlation with competitive advantage (0.667).

Table 4: Innovation Management Practice and Competitive Advantage

Model		Coefficients ^a			T	Sig.
		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta		
1	(Constant)	-1.134	1.332		-.852	.396
	Innovation strategy	.577	.077	.508	7.543	.000
	Innovation culture	.234	.063	.235	3.715	.000
	Cross-functional integration	.240	.074	.180	3.246	.001

a. Dependent Variable: Competitive advantage

Source: Field Survey, 2024.

Table 4 indicated that innovation strategy has a positive effect on competitive advantage ($\beta = 0.508, p < 0.05$). Innovation culture has a positive effect on competitive advantage ($\beta = 0.235, p < 0.05$). It was reported that cross-functional integration has a positive effect on competitive advantage ($\beta = 0.180, p < 0.05$).

competitive advantage as indicated by the adjusted R Square value, which showed that 70% (0.698) of the change in competitive advantage was brought about by innovation management practice. The adjusted R Square indicates how much of the variation in the dependent variable can be explained by changes in the predictor variable.

Table 5: Fitness of the Model

ANOVA ^a						
Model	Sum of Squares	Df	Mean Square	F	Sig.	
1	Regression	257.726	3	85.909	146.660	.000 ^b
	Residual	108.953	186	.586		
	Total	366.679	189			

a. Dependent Variable: Competitive advantage

b. Predictors: (Constant), Cross-functional integration, Innovation culture, Innovation strategy

Source: Field Survey, 2024.

The *F*-ratio in table 5 indicated that innovation management practice significantly predict competitive advantage, $F = 146.660, p < 0.05$. The implication of this is that the regression model is a good fit of the data.

Table 6: Model Summary

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.838 ^a	.703	.698	.765

a. Predictors: (Constant), Cross-functional integration, Innovation culture, Innovation strategy

Source: Field Survey, 2024.

Table 6 showed the extent to which the dimensions of innovation management practice accounted for change in

4.1 Discussion of Results

The strong positive correlation (0.808) and significant effect ($\beta = 0.508$) indicate that organizations with robust innovation strategies are more likely to achieve and sustain competitive advantage. The result aligns with Koyluoglu and Dogan (2021) ^[29] study finding that implementing innovative techniques has a positive impact on corporate success. However, Phung *et al.* (2021) ^[42] study findings also indicated that the presence of an innovation strategy positively impacts innovation, irrespective of whether the plan is implemented internally or outside. An effective innovation strategy provides a clear roadmap for identifying, developing, and implementing new ideas and technologies. It aligns the organization's goals with innovation initiatives, ensuring that efforts are strategically focused on areas that will yield the most significant impact. The positive correlation (0.733) and significant effect ($\beta = 0.235$) suggest that organizations with a strong innovation culture are better positioned to leverage their collective creativity and drive competitive advantage. The result contradicted Tang *et al.* (2020) ^[48] study findings that there is a positive correlation between innovation culture and firm performance in the service industry, but not in the manufacturing industry. The result implied that a strong innovation culture encourages employees to take risks, share ideas, and collaborate across different functions. It fosters

an environment where innovation is valued and supported at all levels of the organization.

The positive correlation (0.667) and significant effect ($\beta = 0.180$) indicate that organizations that excel in cross-functional integration can more efficiently and effectively bring innovative ideas to market, thus enhancing their competitive advantage. Chen (2022) ^[6] study findings demonstrated that the integration of production and marketing, as measured by the CFI, is a successful method for implementing the build-to-order manufacturing strategy and enhancing overall organizational performance. Cross-functional integration (CFI) is a strategy that enhances responsiveness and facilitates the delivery of customer value (Oviedo *et al.*, 2021) ^[39]. The result implied that by fostering collaboration across functions, organizations can more effectively identify opportunities, solve complex problems, and accelerate the development and implementation of innovative solutions.

5. Conclusion

The study concluded that by excelling in innovation management practices, organizations can significantly enhance their competitive advantage, driving long-term growth and success. Innovation management practices, including a clear innovation strategy, a supportive innovation culture, and effective cross-functional integration, collectively create a synergistic effect that enhances an organization's competitive advantage. By focusing on these key areas, organizations can align their innovation efforts with strategic goals, create an environment that nurtures creativity and innovation, leverage diverse perspectives to drive more effective and efficient innovation processes.

6. Recommendations

1. Organizations should prioritize the development and implementation of a robust innovation strategy to significantly enhance their competitive advantage.
2. Cultivating an innovation-friendly culture within the organization can further bolster competitive advantage, making it imperative for leadership to promote and support innovative practices and mindsets.
3. Encouraging collaboration across different departments can positively impact competitive advantage, suggesting that firms should implement structures and processes that facilitate effective cross-functional teamwork.

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