Product and Process Innovation as Determinants of Competitive Advantage among Selected Technology Startups in Lagos State.

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Abstract

In the current technology-driven business environment, innovation has become essential for organisations seeking to achieve and sustain competitive advantage. Technology startups, particularly in developing economies such as Nigeria, face challenges including intense competition, limited resources, infrastructural constraints, and rapidly changing market demands. This study examined product and process innovation as determinants of competitive advantage in selected technology startups in Lagos State, Nigeria. The study adopted a survey research design. The population comprised 329 owners and employees of selected technology startups in Lagos State, with a sample size of 177 respondents determined using the Krejcie and Morgan approach. A purposive sampling technique was employed, and structured questionnaires were administered, with 152 valid responses retrieved. The research instrument was validated using relevant validity tests, while reliability was established through Cronbach's Alpha coefficients ranging from 0.771 to 0.870. Data were analysed using descriptive statistics and linear regression analysis.The findings revealed that product innovation has a significant positive effect on competitive advantage ($\beta = 0.745$, $t = 9.003$, $p < 0.05$), explaining 35.1% of the variation in competitive advantage. Similarly, process innovation was found to have a significant positive effect on competitive advantage ($\beta = 1.726$, $t = 8.343$, $p < 0.05$), explaining 31.7% of the variation. The study concluded that product innovation and process innovation are significant determinants of competitive advantage among selected technology startups in Lagos State, Nigeria. The study recommends that technology startups should prioritize continuous product innovation through research and development and strengthen process innovation through technology adoption, workflow optimization, and automation to enhance competitiveness.

Keywords: Product Innovation; Process Innovation; Competitive Advantage; Technology Startups; Lagos State Nigeria.

Introduction

In today's dynamic and technology-driven business environment, organisations increasingly rely on innovation to achieve and sustain competitive advantage. As markets become more competitive and customer preferences continue to evolve, firms are compelled to develop innovative products while improving internal processes to remain competitive. This challenge is particularly significant for technology startups, whose survival and growth largely depend on their ability to introduce new products, improve operational processes, and respond rapidly to changing market conditions. Competitive advantage refers to an organisation's ability to outperform competitors through superior market performance, efficient resource utilization, and the creation of greater value for customers (Ashish & Mishra, 2025). Consequently, firms that consistently pursue

innovation are more likely to strengthen their market position and improve operational performance.

Globally, product and process innovation have become major sources of competitive advantage across industries. Product innovation enables organisations to develop new or significantly improved products and services that satisfy changing customer needs, enhance customer loyalty, and increase market share. Process innovation, on the other hand, focuses on improving production methods, operational systems, and organisational processes to reduce costs, improve productivity, and enhance operational efficiency (Bargavi, 2025). Despite these benefits, organisations continue to face challenges arising from rapid technological change, digital disruption, and increasing competitive pressure, making continuous innovation essential for long-term sustainability (Teece, 2020).

In advanced economies, particularly the United States, technology companies such as Amazon, Google, and Microsoft have demonstrated how sustained investment in product development and process improvement contributes to market leadership and operational excellence (Francescatabor, 2025). Through continuous innovation in artificial intelligence, cloud computing, and digital platforms, these firms have expanded their market share while improving operational efficiency. Nevertheless, increasing regulatory scrutiny, cybersecurity risks, and the high cost of technological innovation continue to challenge both established firms and emerging startups (Roiser & Richards, 2025).

Across Africa, innovation has increasingly become a strategic tool for enhancing business competitiveness despite infrastructural and institutional limitations. Countries such as Kenya, South Africa, and Nigeria have witnessed significant growth in technology-driven enterprises that leverage innovative products and improved business processes to create competitive value. Kenya's M-Pesa, for example, transformed financial inclusion through product innovation, while South African firms have enhanced productivity through digital process improvements (Dushime, 2022; Emmanuel, 2026). However, unreliable infrastructure, inadequate financing, and policy inconsistencies continue to constrain the ability of many startups to convert innovation into sustainable competitive advantage (Togoh, 2025).

Nigeria possesses one of Africa's largest technology ecosystems, supported by a youthful entrepreneurial population, expanding internet penetration, and increasing digital investment. Despite these opportunities, many technology startups struggle to achieve sustainable competitive advantage due to inadequate infrastructure, high operating costs, weak institutional support, and limited access to innovation financing (Emeje & Ogu, 2024; Olamade, 2022). These challenges often restrict their ability to expand market share and improve operational efficiency, which are essential indicators of competitive advantage.

Lagos State is the hub of Nigeria's digital economy, hosting the country's largest concentration of technology startups and innovation ecosystems. Supported by initiatives such as the Lagos State Development Plan 2052 and the Industrial Policy (2025–2030), the state continues to promote innovation and business competitiveness (Arinze, 2023; Vanguard, 2025). However, many technology startups still face challenges in expanding market share and improving operational efficiency due to intense competition and rapid technological changes.

Against this backdrop, product and process innovation are essential for achieving competitive advantage. Product innovation enables startups to develop differentiated offerings that enhance market share, while process innovation improves operational efficiency through better resource utilization and productivity. Although previous studies have linked innovation with organisational performance, limited empirical evidence exists on how product innovation influences competitive advantage and how process innovation affects competitive advantage among technology startups in Lagos State. Therefore, this study examines product and process innovation as determinants of competitive advantage in selected technology startups in Lagos State, Nigeria.

Statement of the Problem

Technology startups operate in an increasingly competitive and dynamic business environment where achieving sustainable competitive advantage depends largely on their ability to innovate. Despite the rapid

growth of Nigeria's technology ecosystem, particularly in Lagos State, many startups continue to struggle with expanding market share and improving operational efficiency due to limited resources, infrastructural deficiencies, intense competition, talent shortages, and uncertain funding opportunities. Although previous studies have established a positive relationship between innovation and organisational performance, most have focused on small and medium-sized enterprises or innovation in general, with limited attention to how product innovation and process innovation influence competitive advantage among technology startups in Lagos State. This empirical gap limits the understanding of the innovation strategies that are most effective in strengthening competitive advantage within the sector. Therefore, this study investigates product and process innovation as determinants of competitive advantage in selected technology startups in Lagos State, Nigeria, with a view to providing empirical evidence that will inform managerial decisions, innovation strategies, and policy interventions aimed at enhancing the competitiveness of technology startups.

Research Questions

- How does product innovation affect Competitive advantage?
- What is the effect of process innovation on Competitive advantage?

Product Innovation

Product innovation refers to the development of new products or significant improvements to existing ones to satisfy customer needs, create value, and strengthen competitive advantage. It includes improvements in product features, design, functionality, quality, and performance (Thompson & Liu, 2024). Ming-xing (2025) views product innovation as a continuous strategic process that enables organisations to remain competitive. Key dimensions include new product development, quality enhancement, and performance improvement (Nguyen, 2024). Product innovation can arise from customer insights, employee creativity, and cross-functional collaboration, rather than solely from R&D activities (Sarka, 2024). Thus, product innovation serves as a strategic capability that helps organisations respond to changing customer preferences, differentiate their offerings, expand market share, and achieve sustainable competitive advantage (Valtakoski, & Raukko, 2021).

Process Innovation

Process innovation refers to the implementation of new or significantly improved production methods, operational procedures, and organisational processes aimed at enhancing efficiency, reducing costs, and improving overall performance. Meeus and Edquist,(2006) define it as the introduction of improved production or delivery methods involving changes in techniques, equipment, or software, while Maziriri and Maramura, (2022),view it as the redesign of operational workflows to improve productivity and resource utilisation. The major dimensions of process innovation include automation adoption, workflow optimisation, and quality control enhancement (Bornhausen, & Wulf, 2024).). Process innovation can occur across all organisational functions where continuous improvement and process evaluation are encouraged (Yu, 2017). Consequently, it is regarded as a strategic capability that enhances operational efficiency and contributes to sustainable competitive advantage by transforming organisational resources into superior performance outcomes (Fais & Mohamad, 2024)

Competitive Advantage

Competitive advantage refers to an organization's ability to outperform competitors by creating superior value through unique resources, capabilities, or strategies that are difficult to imitate. According to Saraev (2026), firms sustain competitive advantage when competitors cannot replicate their resources or business processes.

Similarly, Boshoff, (2023) and Saraev, 2026) argue that competitive advantage arises from offering products or services that provide greater value than those of competitors. For technology startups, competitive advantage is essential for survival, growth, and long-term success in an increasingly dynamic and competitive business environment. Firms that consistently create greater economic value than their rivals are better positioned to expand and remain competitive (Boshoff, (2023): Meutia et al, 2024). Consequently, competitive advantage is widely recognized as a key driver of organisational continuity, resilience, and sustainable growth (Sarkar, 2024)

Product Innovation and Competitive Advantage

Product innovation and competitive advantage are closely related because the development of new or significantly improved products enables firms to differentiate themselves, attract customers, respond to changing market needs, and strengthen their position relative to competitors. Wahl (2020) conceptualised product innovation as the creation of new products or substantial improvements to existing products, while competitive advantage reflects a firm's ability to achieve superior market positioning through distinctive value and performance. Empirical evidence supports this relationship. Meutia et al. (2020) found that pioneering products can generate substantial and lasting market advantages over follower products, with superior product quality and broader product offerings contributing to stronger market outcomes. Similarly, Argente et al. (2020) demonstrated that product pioneers maintain significant long-term advantages across both industrial and consumer goods markets, although the effect was stronger in consumer goods. These findings suggest that product innovation can strengthen competitive advantage by enabling firms to establish differentiation and secure favourable market positions before competitors.

However, the existing literature largely examines product innovation through market share, order of entry, and pioneering advantages, leaving a gap in understanding whether and how product innovation more broadly translates into sustained competitive advantage. The emphasis on pioneering firms also provides limited insight into organisations that achieve competitive advantage through continuous product improvement, adaptation to customer needs, or technological innovation rather than first-mover status alone. Furthermore, evidence from different industries suggests that the competitive returns from product innovation may vary according to market characteristics and customer acceptance. This creates a need for further empirical investigation into the direct contribution of product innovation to competitive advantage, particularly in dynamic and technology-driven environments. Therefore, based on the identified gap and the evidence from previous studies, the study hypothesises that:

(H_1): Product innovation has a significant positive effect on competitive advantage.

Process Innovation and Competitive Advantage

Process innovation and competitive advantage are closely related because improved production and delivery processes enable firms to enhance operational efficiency, reduce costs, minimise waste, improve quality, and respond more effectively to market demands. Ming-xing (2025) conceptualised process innovation as the adoption of new or significantly improved production or delivery methods involving changes in techniques, equipment, and software, while operational efficiency concerns the delivery of quality products and services with minimal cost and time. Supporting this relationship, Fais and Mohammed (2024) found that AI-driven process innovation enhances efficiency through real-time workflow optimisation, predictive maintenance, quality control, and improved supply chain management. Similarly, Wallner (2025) showed that integrating artificial intelligence and Internet of Things (IoT) technologies improves manufacturing processes by reducing waste and production costs while increasing productivity. Atige (2025) further reported that continuous process innovation strengthens logistics, customer service, and digital transformation capabilities. Collectively, these studies suggest that process innovation can provide firms with operational capabilities that

support superior performance and competitive positioning.

Despite this evidence, an important gap remains in establishing whether the operational benefits of process innovation directly translate into competitive advantage, particularly beyond improvements in efficiency and productivity. Existing studies largely emphasise cost reduction, workflow optimisation, technological integration, and operational performance, while comparatively less attention is given to how these improvements enable firms to achieve and sustain an advantage over competitors. Moreover, the increasing application of AI and IoT suggests that the competitive value of process innovation may depend on how effectively firms integrate and continuously adapt these technologies within their operations. Thus, while previous findings provide a strong basis for expecting a positive relationship, further empirical investigation is required to establish the extent to which process innovation contributes to competitive advantage in specific organisational contexts. This gap provides justification for testing the hypothesis that:

(H_1): Process innovation has a significant positive effect on competitive advantage

Conceptual Framework

Following a review of the literature, the Resource-Based View (RBV) Theory was adopted as the theoretical foundation for this study. The theory posits that sustainable competitive advantage arises from an organization's valuable, rare, inimitable, and non-substitutable (VRIN) resources and capabilities. It emphasizes that internal capabilities, rather than external market conditions, are the primary drivers of superior performance. In this study, product innovation and process innovation are viewed as strategic capabilities that enable technology startups to develop differentiated products, improve operational efficiency, and create superior value. Accordingly, the RBV provides an appropriate framework for explaining how these innovation capabilities influence the competitive advantage of selected technology startups in Lagos State.

Conceptual Model

Product Innovation

Product Innovation

Competitive Advantage

Competitive Advantage

Process Innovation

Process Innovation

Fig 1.1: Conceptual Model

Source: Author's Model, 2026

Underpinning Theory

This study is anchored on the Resource-Based View (RBV) Theory, which was developed from the works of Edith Penrose and later advanced by Barney (1991). The theory explains that an organisation's ability to achieve and sustain competitive advantage depends on its possession and effective utilisation of valuable, rare, inimitable, and non-substitutable (VRIN) resources and capabilities. Unlike approaches that focus primarily on external market conditions, RBV emphasizes that internal organisational resources, knowledge, skills, and capabilities are the major sources of superior performance. According to RBV, firms achieve competitive advantage through unique capabilities that competitors cannot easily imitate. For technology startups, innovation capabilities serve as strategic resources that create value and enhance competitiveness. Product innovation improves differentiation, while process innovation strengthens operational efficiency through better workflows and resource utilisation.

The theory is relevant to this study because product and process innovation represent internal capabilities that can provide technology startups with sustainable competitive advantages. Startups that effectively develop and apply these innovation capabilities are better positioned to improve market performance, enhance operational efficiency, and maintain competitiveness in dynamic technology-driven environments. Therefore, the Resource-Based View provides an appropriate theoretical foundation for examining how product innovation and process innovation influence competitive advantage among selected technology startups in Lagos State.

Empirical Review

Sarkar et al. (2024) examined the effect of product innovation, product quality, and pricing on sustainable competitive advantage. Using structured questionnaires and multiple regression analysis with SPSS version 25, the study found that product innovation significantly and positively influences product quality and pricing. The findings further revealed that process innovation, product innovation, product quality, and pricing significantly enhance sustainable competitive advantage. The authors concluded that firms can achieve and sustain competitive advantage by investing in innovation while maintaining product quality and adopting appropriate pricing strategies.

Yu et al. (2017) investigated the relationship between the knowledge creation process, technological innovation capabilities, and sustainable competitive advantage using the Knowledge-Based View (KBV) as the theoretical framework. The study sought to determine both the direct and indirect effects of the knowledge creation process on firms' sustainable competitive advantage, with technological innovation capabilities serving as a mediating variable. Technological innovation capabilities were measured in terms of process innovation capability and product innovation capability. The study employed a quantitative research design and analyzed data collected from 315 Chinese industrial firms using Structural Equation Modeling (SEM). The findings revealed that the knowledge creation process does not directly influence sustainable competitive advantage. Instead, its effect is transmitted entirely through technological innovation capabilities. Specifically, the study established that knowledge creation enhances firms' process and product innovation capabilities, which subsequently contribute to achieving sustainable competitive advantage. The authors concluded that organizations seeking to sustain competitive advantage should prioritize the development of technological innovation capabilities by effectively creating, sharing, and applying organizational knowledge.

Maziriri and Maramura (2022) examined the effects of green product and green process innovation on sustainable competitive advantage and business performance among manufacturing SMEs in South Africa. Using a quantitative approach, data were analyzed with SPSS version 25 and the hypothesized relationships were tested using Structural Equation Modeling (SEM) with AMOS version 25. The findings showed that

both green product and green process innovation have significant positive effects on sustainable competitive advantage and business performance. The study concluded that green innovation serves as a strategic resource for strengthening competitiveness, improving performance, and creating long-term business value.

Bornhausen and Wulf (2024) examined how digital innovation enhances the competitiveness of family firms by investigating the roles of non-family managers and transgenerational control intentions. The study focused on how digital technologies facilitate product and business process innovations that improve organizational performance and strengthen competitive advantage. Using a survey-based research design, the authors collected data from family firms and analyzed the relationships among the study variables to determine the drivers of digital innovation. The findings revealed that family firms can compete more effectively with their non-family counterparts by strengthening their innovation capabilities through the adoption of digital technologies. Specifically, digital innovation enables firms to introduce new products and services more rapidly while improving the efficiency of business processes. These improvements ultimately enhance customer satisfaction and reinforce firms' competitive position. The study concluded that embracing digital innovation is a strategic approach for family firms seeking to achieve sustainable competitive advantage in an increasingly dynamic business environment.

Paunović et al. (2023) examined business process innovation among family and non-family firms in Serbia, focusing on innovation performance and its relationship with customer satisfaction. Using a quantitative

approach, data from 207 firms were analyzed using descriptive statistics, reliability analysis, t-test, ANOVA, and correlation analysis. The findings showed that both family and non-family firms demonstrate commitment to business process innovation, which is positively associated with customer satisfaction and retention. The study concluded that continuous process innovation can strengthen customer loyalty and improve organizational performance.

Methodology

This study adopted a survey research design to examine the relationship between product and process innovation and competitive advantage among selected Technology start-ups in Lagos State, Nigeria. Data were collected using a structured questionnaire administered to selected respondents. The study population comprised approximately 329 owners and employees of selected technology start-ups in Lagos State. Using the Krejcie and Morgan (1970) approach, a sample size of 177 respondents was considered adequate. Respondents included owners and employees in product development, operations, customer service, marketing, and administration. They were selected because of their knowledge and involvement in organisational innovation practices and performance. Previous studies, including Popoola et al. (2022), support the use of managers and management personnel as appropriate respondents in innovation research. The study employed purposive sampling to select start-ups and respondents with relevant knowledge and experience. The formulated hypotheses were tested using simple linear regression analysis. The approach enabled the study to determine the individual effects of product and process innovation on the competitive advantage of selected Technology start-ups.

Table 1: Reliability of Research Instrument

S/N

Variables

No of Items

Cronbach’s Alpha

(θ)

Comments

1

Product innovation

5

.771

Reliable

2

Process innovation

5

.870

Reliable

3

Competitive advantage

5

.858

Reliable

Source: researcher’s computation, 2026

Table 2: Population of the study

Company Name

Population

Sample Distribution

Flutterwave

100

54

Paystack

85

46

Moniepoint

80

43

Andela

64

34

Total

329

177

Source: Annual Report of selected firms, 2025

Methodological Justification for the Selection

Flutterwave, Paystack, Moniepoint, and Andela were purposively selected because they are prominent technology-driven firms with significant operations and influence within Nigeria's digital economy, particularly the Lagos technology ecosystem. Their selection is supported by evidence highlighting the importance of technological innovation, product development, operational efficiency, and market responsiveness to organisational competitiveness. Flutterwave and Paystack are relevant due to their roles in developing digital payment solutions through technological innovation, strategic partnerships, and market expansion. Moniepoint is supported by Agogbua, Umeaniba and Mgbatogu (2024), who found that technology-enabled innovation and market expansion significantly influenced its operations. Andela was included because its business model relies on digital platforms, technological capabilities, talent development, and innovation, as documented by the International Finance Corporation (IFC). Collectively, these firms provide relevant cases for examining how product and process innovation influence competitive advantage among technology-driven firms.

Research Hypothesis One

H01: product innovation has no significant effect on competitive advantage

Table 3: Summary of results of Linear Regression Analysis for effect of Product Innovation on Competitive Advantage of selected Tech Start-Ups in Lagos State, Nigeria.

Model

N = 152

B

T

Sig.

R

R2

F(1, 150)

Sig

(Constant)

1.077

2.608

.010

.592a

.351

81.056

.000b

Product Innovation

.745

9.003

.000

- Dependent Variable: Competitive Advantage
- Predictors: (Constant), Product Innovation

Source: Researchers' Findings 2026

Table 3 presents the linear regression results on the effect of product innovation on the competitive advantage of selected tech start-ups in Lagos State, Nigeria. The findings reveal that product innovation has a positive and significant effect on competitive advantage ($\beta = 0.745$, $t = 9.003$, $p < 0.05$), indicating that increased product innovation enhances competitive advantage.

The correlation coefficient ($R = 0.592$) indicates a moderate positive relationship between product innovation and competitive advantage, while the coefficient of determination ($R^2 = 0.351$) shows that product innovation explains 35.1% of the variation in competitive advantage, with the remaining 64.9% attributable to other factors not included in the model. The significant p-value ($p < 0.05$) confirms that the regression model is statistically fit.

The regression equation further indicates that, when product innovation is held constant at zero, competitive advantage is 1.077. A one-unit increase in product innovation leads to a 0.745-unit increase in competitive advantage. Based on these findings, the null hypothesis (H01) was rejected, confirming that product innovation has a significant positive effect on the competitive advantage of selected tech start-ups in Lagos State, Nigeria.

Research Hypothesis Two

H02: process innovation has no significant effect on competitive advantage

Table 4: Summary of results of Linear Regression Analysis for effect of Process Innovation on Competitive Advantage of selected Tech Start-Ups in Lagos State, Nigeria.

Model

N = 152

B

T

Sig.

R

R2

F(1, 150)

Sig

(Constant)

B

4.784

.000

.563a

.317

69.614

.000b

Process Innovation

1.726

8.343

.000

- Dependent Variable: Competitive Advantage
- Predictors: (Constant), Process Innovation

Source: Researchers' Findings 2026

Table 4, presents the linear regression results on the effect of process innovation on the competitive advantage of selected tech start-ups in Lagos State, Nigeria. The findings show that process innovation has a positive and significant effect on competitive advantage ($\beta = 1.726$, $t = 8.343$, $p < 0.05$), indicating that improvements in process innovation enhance competitive advantage.

The correlation coefficient ($R = 0.563$) indicates a moderate positive relationship between process innovation and competitive advantage, while the coefficient of determination ($R^2 = 0.317$) shows that process innovation explains 31.7% of the variation in competitive advantage, with the remaining 68.3% attributable to other factors outside the model. The significant p-value ($p < 0.05$) confirms that the regression model is statistically fit for predicting the effect of process innovation on competitive advantage.

Discussion of Findings

The findings of the study collectively demonstrate that innovation is an important strategic mechanism through which tech start-ups in Lagos State can achieve and sustain competitive advantage. Specifically, both product innovation and process innovation exert significant positive effects on competitive advantage, although their explanatory powers differ slightly. Product innovation accounts for 35.1% of the variation in competitive advantage, while process innovation accounts for 31.7%. This suggests that the ability of tech start-ups to introduce improved or novel products and services, as well as to enhance the processes through which their activities are performed, contributes substantially to their ability to compete effectively in a dynamic technological environment.

The positive effect of product innovation suggests that tech start-ups that continually develop, modify, and improve their products are better positioned to respond to changing customer preferences, technological developments, and market demands. In the highly dynamic technology sector, customers often expect new features, improved functionality, convenience, and differentiated solutions. Consequently, firms that possess the capacity to translate emerging technologies and customer insights into innovative products are more likely to distinguish themselves from competitors and strengthen their market position. The finding is consistent with Valtakoski and Raukko (2021), who reported that product innovation improves market share by enabling firms to respond effectively to evolving customer needs and technological changes. It also supports Carayannis and Grigoroudis (2022), who identified innovation capability as an important source of competitive advantage, particularly among firms operating in dynamic and technology-intensive markets.

Similarly, the significant positive effect of process innovation indicates that improvements in the methods, technologies, and systems used to deliver products and services are important to the competitiveness of tech start-ups. Process innovation can enable firms to reduce operational inefficiencies, improve service delivery, optimize resource utilization, shorten response times, and enhance the consistency and quality of their operations. These benefits are particularly relevant to technology start-ups, which often operate under conditions of limited resources and intense competition. The finding corroborates Paunović et al. (2023), who found that firms that adopt advanced technologies and continuously improve their production processes

achieve greater operational efficiency and stronger competitive performance. It is also consistent with Bornhausen and Wulf (2024), who found that digital process innovations, including automation and advanced analytics, can significantly enhance organizational performance in technology-driven firms.

Limitations of the Study

This study was limited to selected tech start-ups in Lagos State, Nigeria; therefore, the findings may not be fully generalisable to tech start-ups in other states or regions of Nigeria with different business and technological environments. The study also focused specifically on product innovation and process innovation as determinants of competitive advantage, leaving out other potentially important factors such as marketing innovation, organisational innovation, financial capability, technological infrastructure, and entrepreneurial orientation. In addition, the study relied on data collected from respondents, which may be influenced by individual perceptions and response biases.

Direction for Further Studies

Further studies should extend the investigation to tech start-ups in other states or across Nigeria to provide broader evidence on the relationship between innovation and competitive advantage. Future researchers could also examine other dimensions of innovation, such as marketing and organisational innovation, and incorporate moderating or mediating variables such as firm size, access to finance, technological capability, and entrepreneurial orientation. In addition, longitudinal studies could be conducted to examine how the effects of innovation on competitive advantage change over time.

Conclusion

The study concludes that innovation is a significant determinant of competitive advantage among selected tech start-ups in Lagos State, Nigeria. Specifically, both product innovation and process innovation were found to have significant positive effects on competitive advantage, indicating that start-ups that continuously develop innovative products and improve their operational processes are more likely to achieve stronger competitive positions. Product innovation demonstrated a slightly higher explanatory contribution, accounting for 35.1% of the variation in competitive advantage, while process innovation accounted for 31.7%. The findings therefore suggest that tech start-ups can enhance their competitiveness, market responsiveness, operational efficiency, and long-term sustainability by making continuous innovation an integral part of their strategic activities. Therefore, the study affirms that a combination of product and process innovation is essential for enabling tech start-ups to adapt to changing market demands and sustain competitive advantage in the dynamic Nigerian technology sector.

Recommendations

- Management of technology startups should prioritize continuous product innovation by investing in research and development, encouraging creativity, and empowering innovation teams to develop differentiated products that meet changing customer needs and strengthen competitive advantage
- Technology startups should strengthen process innovation by adopting modern technologies, optimizing workflows, and automating key operations to improve operational efficiency, enhance productivity, and sustain competitive advantage.

References

Adewumi, K., & Okafor, L. (. (2024). Workplace stress and employee performance in Nigerian service industries. Journal of Business and Management Studies, 45–57.

Agogbua, S. N., Umeaniba, A. I., & Mgbatogu, C. D. (2024). Nigeria Start-Up Act, 2022 disruption on financial services technology startups (Fintech): A study of Moniepoint (Point of Sales) POS agents in Anambra State. International Journal of Small Business and Entrepreneurship Research, 12(2), 59–71.

Ahmed, J. U., Talukdar, A., Khan, M. M., Sharif, R., & Ahmed, A. (2023). Flutterwave A digital payment solution in Nigeria. Journal of Information Technology Teaching Cases, 13(1), 50–57.

Arize, B. C. (2023). The Challenges of Industrialization in Nigeria and The Way Forward. International Journal of Research and Innovation in Social Science, 691-704.

Ashish, A., & Mishra, A. (2025). The Impact of Innovation Management on Competitive Advantage in Tech Firms. Indian Scientific Journal Of Research In Engineering And Management, 9(2), 1–9.

Atige, S. (2025). The Impact of Process Innovation Strategies on Corporate Performance of Multinational Corporations in Juba, South Sudan. African Strategic Management Journal, 1-19. doi:10.5281/zenodo.15690534

Bargavi, N. (2025). Technopreneurship: Merging Tech Startups with Management Innovation. International Journal For Science Technology And Engineering, 6, 2196–2201.

Barney, J. (1991). Firm resources and sustained competitive advantage. Journal of Management, 17(1), 99–120.

Bornhausen, A. M., & Wulf, T. (2024). Digital innovation in family firms: The roles of non-family managers and transgenerational control intentions. Small Business Economics, 62(4), 1429–1448.

Boshoff, W. H. (2023). Why define markets in competition cases. Research Papers in Economics, 14- 44.

Dushime, A. (2022). These four countries are leading Africa's start-up scene. Retrieved from WeForum: https://www.weforum.org/stories/2022/08/africa-start-up-nigeria-egypt-kenya-south-africa/

Emeje, M., & Ogu, E. (2024). Promoting and utilization of Nigeria natural resourses for economic development. African Journal of Economics and Sustainable Development, 7(2), 236-242.

Fais, M., & Mohamad, S. (2024). Service Quality Improvement Analysis Using the Service Quality Method (Case Study: AKS Restaurant). Journal of Service Science, 52- 64.

Francescatabor. (2025). Tech Giants' Ecosystem Strategies. Retrieved from francescatabor.com: https://www.francescatabor.com/articles/2025/8/17/tech-giants-ecosystem-strategies

Küçükoğlu, M.T., & Pınar, R.Đ. (2015). Positive influences of green innovation on company performance. Procedia Social and Behavioral Sciences, 195, 1232-1237

Küçükoğlu, M.T., & Pınar, R.Đ. (2015). Positive influences of green innovation on company performance. Procedia Social and Behavioral Sciences, 195, 1232-1237.

Maziriri, E.T., & Maramura, T. (2022). Green innovation in SMEs: the impact of green product and process innovation on achieving sustainable competitive advantage and improved business performance. Academy of Entrepreneurship Journal, 28(1), 1-14.

Meeus, M., & Edquist, C. (2006). Introduction to Part I. Product and Process Innovation. Innovation, Science and Institutional Change. A Research Handbook, 23-37.

Meutia, Z., Dewi, H. P., Basir, F. A., Rinaldi, M., & Kholis, A. (2024). Product Innovation Analysis as a

Strategy to Survive in Competitive Markets. International Journal of Advanced Research, 159-165.

Ming-xing, L. (2025). The General Principle of Innovation. Technology & Innovation Management, 26(6), 17-18.

Ming-xing, L. (2025). The General Principle of Innovation. Technology & Innovation Management, 26(6), 17-18.

Nguyen, H. M., Ho, T. K., & Ngo, T. T. (2024`). The impact of service innovation on customer satisfaction and customer loyalty: a case in Vietnamese retail banks. Future Business Journal, 10(61), 10-42.

Roiser, A., & Richards, M. (2025). 2026 technology industry trends. Retrieved from plantemoran: https://www.plantemoran.com/explore-our-thinking/insight/2025/01/2025-tech-industry-trends

Saraev, N. (2026). Why Service Is Now the Core of Competitive Advantage. Field Service, 12-15. Retrieved from https://www.copperberg.com/why-service-is-now-the-core-of-competitive-advantage/

Saraev, N. (2026). Why Service Is Now the Core of Competitive Advantage. Field Service, 12-15. Retrieved from https://www.copperberg.com/why-service-is-now-the-core-of-competitive-advantage/

Sarkar , A. S., Hazhar , O. M., Rawa, A. M., & Rezhwan , F. O. (2024). The importance of product innovation in maintaining a competitive advantage. Mednarodno Inovativno Poslovanje = Journal of Innovative Business and Management, 16(2), 1-15.

Tech-Collective. (2025). Designing human-centric AI customer support in Southeast Asia. Retrieved from techcollectivesea.: https://techcollectivesea.com/2025/09/16/human-centric-ai-customer-support/

Togoh, S. (2025). Poor infrastructure, weak policy blamed for Africa’s slow transition to digital finance. Retrieved from univers.ug: https://univers.ug.edu.gh/poor-infrastructure-weak-policy-blamed-for-africas-slow-transition-to-digital-finance/

Valtakoski, A., & Raukko, M. (2021). Product innovation and competitive advantage in professional service firms. Industrial Marketing Management, 95, 162-174.

Vanguard. (2025). Lagos adopts new industrial policy for global competitiveness. Retrieved from Vanguard: https://www.vanguardngr.com/2025/02/lagos-adopts-new-industrial-policy-for-global-competitiveness/

Wallner, S. (2025). What is the Relationship between Innovation and Competitive Advantage? Retrieved from Startus-insights: https://www.startus-insights.com/innovators-guide/relationship-between-innovation-and-competitive-advantage/

Yu, C., Zhang, Z., Lin, C., & Wu, Y. J. (2017). Knowledge creation process and sustainable competitive advantage: The role of technological innovation capabilities. Sustainability, 9(12), Article 2280. https://doi.org/10.3390/su9122280