Impact of Technological Innovation on Marketing Effectiveness and Performance in the Mobile Phone Industry

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Article Info
Journal of Enterprise and Business Intelligence (https://anapub.co.ke/journals/jebi/jebi.html)
Doi: https://doi.org/10.53759/5181/JEBI202606003
Received 22 July 2025; Revised from 02 September 2025; Accepted 30 September 2025.
Available online 05 January 2026.

Abstract – In this study, we theorize an innovation model as a sector-based framework that initiates a phase-by-phase process of marketing operations. This significantly impacts the outcomes of performance, which is measurable. Our study considers innovation as a facilitating input that has to exceed a particular activation level to extend effectively through promotional responsiveness, distribution efficiency, pricing policy, and product innovation. Using survey data from industry employees, we evaluated professional traits and demographics of participants, their innovation awareness, and their vision of organizational outcomes. Our findings show that technological innovation has a significant impact on product innovation speed and promotion, which are the most impactful factors affecting performance findings, whereas distribution/pricing changes has comparatively minor impacts.

Keywords – Technological Innovation, Mobile Phone Industry, Organizational Performance, Marketing Strategy, Innovation Activation, Product Innovation Velocity, Innovation-Driven Performance.

I. INTRODUCTION

Innovation is fundamental in stimulating organizational competitiveness within various industries, particularly, in engineering, urban planning, and architectural firms. Until now, there is no globally accepted definition of the term ‘innovation’, and so many governmental documents and academic papers focus on the measurement and definition of innovation in the public sector. Oke [1] define this type of innovation as the “application of a processes, service, technology, practice, or production that is novel to the deploying firm.” According to the scholars, innovation is a process in which novel practices, objects, and ideas are established, reinvented or developed.

Dvir and EPasher [2] posited that “all innovations mirror already prevailing knowledge, linking in novel ways.” They acknowledge that innovation study is a critical study of change procedures, knowledge integration, and knowledge development, for the purpose of producing novel links. In general, innovation needs not to be considered as one occurrence, but rather as a cumulative and continuous process. Normally, the terms ‘sustainability’ and ‘innovation’ are indistinguishably linked as innovation is a critical capability for sustainable firms.

Based on the objectives of innovation impact on performance, prior literature on the effect of innovation objectives on performance are majorly limited to economic-based goals. This implies that while societal and environmental objectives are the main reasons companies pursue innovation, the impact of sustainability as a reason to perform innovation on performance is still unexplored.

The performance of a firm integrates business outcomes and actual productivity that is computed the adjacent to its planned objectives, targets or productivity. Performance has been illustrated as the ability of companies to achieve their objectives with the assistance of competent administration, effective governance, and have continuous rededication to achieve organizational objectives. Performance is a sign that deals with the manner in which a firm completes its objectives. In addition, it is one of the major constructs in management studies.

Henri’s [3] perspectives differ on the basis of defining ‘performance’ as most of them describe them as the gathering of input/output measurements and its transactional efficacy. However, ‘organizational performance’ is a wider concept that integrates various paradigms of competitive, operational, and management excellence of a firm and its operations. Some non-financial performance metrics have been noted to enhance comprehension of organizational performance, such as customer satisfaction and market performance.

The present business ecosystem is featured by big data flows, hypercompetition, globalization, and dynamism. Therefore, a successful and efficient business should react and be flexible to the rapidly transforming market. The response of a business is stimulated by the prompt, accurate, and constant flow of data retrieved through IT (information technology). The constant development of IT and communication has meaningfully affected business functions like research and development, accounting, finance, procurement, and sales/marketing. Various technological innovation approaches have been evaluated and embedded in different marketing practices.

In that regard, economists view 'marketing innovation' from the process and product standpoint, while marketing scholars consider 'innovation' from the viewpoint of commercialization. In general, the experts describe innovation as a general instrument that allows executives to effectively utilize their resources to develop competitive advantage. The success of an innovative marketing concept relies on the capability to operate harmoniously and homogeneously within the local environment. The long-term objectives, utility, and scope of the marketing concept impact the overall value that all delivery chain professional and partners seek to establish. The concept, in a global setting, incorporates sales, distribution, and theories of marketing.

Various scientific publications in the domain of innovation research begins from the ground that innovation contributes to a company's competitive rivalry and is viewed a requirement to the survival of the firm. The literature of adoption diffusion, can be routed to the work of MacVaugh and Schiavone [4], who reviewed the Law of Imitation introduced in the 1900s. Nonetheless, not until the DOI (Diffusion of Innovation) theory was introduced by Sanni et al. [5], that diffusion and adoption literature started gaining popularity. Many scholars conceptualize adoption as a communication channel while adoption reflects the trend of data flow concerning innovation in a firm.

Our research explores the impact of technological adoption on the performance of firms within the mobile phone industry by altering the significant marketing processes. It also determines how effective employees are aware of strategies and innovations, which contribute to competitive rivalry and organizational performance.

The rest of this work has been organized as follows: Section II reviews the wider concept of technology innovation and marketing. The section discusses market/innovation goal achievement, innovation impact of business objectives, employee demographics and awareness, and innovation efficacy. Section III describes our research model, which integrates our conceptual model of innovation-oriented performance, structural model specification, as well as decision, estimation and validation procedure. Our findings have been detailed in Section IV. Lastly, we highlight in Section V how innovation is vital in enhancing organizational performance within the mobile phone sector.

II. TECHNOLOGY INNOVATION AND MARKETING

Innovation Efficacy

The term 'innovation efficacy' typically refers to the capacity to translate technological inputs into outputs, and it may be enhanced with minimal innovative inputs needed for a similar output level, or a similar input amount utilized with more output production. Since innovation is not considered a linear procedure that inputs mechanically to produce outputs, innovation efficiency, which is the output ratio, should be reviewed.

In that regard, Lan, Li, and Wang [6] have reviewed the efficacy of innovation, and the adoption of DEA has been widely witnessed as a strategy to capture innovation efficacy, when contrasting outputs to their inputs. The DMUs (decision-making units) of literature on innovation efficacy have been varied; from province-level to firm-level, even wider to nation-level. **Table 1** provides a summary of previous researches of innovation efficacy.

Innovation Awareness and Employee Demographics

The complex relationship between eco-innovations, digitalization, demographic changes, and circular economy has been reviewed by Hojnik et al. [12]. This interplay has been studied using a case that involved 10 Slovenian firms. While the study majorly reviewed multilayered effects of digitalization, demographic transformation emerges as a vital constituent impacting the implementation of sustainable business activities. These changes are critical is determining firms' strategies towards the circular economic operations, relating to the broader study of demographic impacts on social and economic systems. The significance of comprehending these demographic dynamics, certainly concerning consumer behavior and workforce composition, is fundamental in creating efficient circular economy and eco-innovation approaches.

A study by Linnér and Wibeck [13] affirms the transformative obligation of demographic changes in societal and industry systems, underscoring their relevance as drivers of sustainable activities. Within this economy, demographic factors are critical in determining consumer trends and enhancing eco-innovation demand. Therefore, their study highlights the need for firms to effectively navigate these demographic changes to align with the rapidly evolving community preferences and values in pursuing circular and sustainable organizational models.

Antončič et al. [14] also conducted research on the effects of digitalization and demographic changes on circular economy and eco-innovations using semi-structured interviews with Slovenian firms. Their results show that all the reviewed firms had incorporate circular economic activities, such as material reuse, recycling, remote monitoring of product rentals, closed resource loops (water and materials), usage of green technology, sustainable material development, and digitalization production, including harnessing more energy in open-circle recycling, and technological processes.

The firms highlighted the fundamental role of digitalization in determining the future of circular economy, emphasizing the significance of robotization, automation, and the application of advanced technological tools in their business operations as their measure of digital change. In that regard, digitalization was viewed as a replacement of low-productivity employment

opportunities with higher productivity role, which boosted resource management and energy efficiency. Resultantly, transparent, manageability, and control of technological processes was increased; and environmental effects and energy consumption reduced.

Table 1. Innovation Efficacy Research

Author(s)	Methodology	DMU	Input Factors	Output Factors
Chai, Fan, and Han [7]	DEA	38 Chinese novel energy firms	R&D costs, staff wages, fixed assets	Market value, total profits
	Malmquist index/DEA	First phase (415)/second phase (362) Spanish manufacturing companies	High-skilled staff, R&D capital stock	Patent number, product innovation number
Lin, Wu, and Yang [8]	DEA	182 Chinese industrial technological companies	Marketing, manufacturing, R&D, learning, resources	New rate of products, productivity, profit growth, export rate, sales growth, market share
Kalapouti et al. [9]	DEA	30 Chinese province-level areas	Value of contracture inflow of domestic innovative markets, expenditure on domestic technology purchase, expenditure on technology import, foreign direct investment, number of science/technology experts, expenditure on science/technology	Yearly income in urban residents/capita, export value, sales of new products, gross domestic product
Zhang, Luo, and Chiu [10]	DEA	30 Chinese province-level regions	Full-time R&D experts, R&D expenditure	Primary business profit, revenue of new product sales, patent application
	DEA	26 Chinese province-level regions	Cumulative patent stocks, full-time technologists/scientists on R&D activities, internal use of R&D funding	Revenue of new product sales, export value of new products, value-added profits, value added tax
Firsova, Chernyshova, and Tugusheva [11]	DEA	22 Nations	Prior cumulative knowledge stock refining upstream knowledge production, increasing R&D expenditure, number of full-time engineers and scientists	New product export in high-tech industries, added value of industries
B.-O. Linnér and V. Wibeck, [13]	DEA	35 Nations	Entrepreneurship & innovation, knowledge creation, innovation drivers	Intellectual property, applications

Demographic diversity is a critical element to consider when establishing innovation groups, especially where the labor market has to be transformed in terms of race, gender, and age (e.g., in South Africa). Current research reports mixed results concerning the impacts of demographic diversity on the performance of innovation across different groups. A study by

Tshetshema and Chan [15] significantly contributes to current literature by systematically reviewing the impact of this diversity and its aspects on technological performance across innovation groups.

Their findings posit that increased diversity of demographics, such as culture, gender, and age increases group innovation efficiency when considered selectively while the general group demographic diversity has mixed impacts. The study also extends to acknowledge the effects and presence of different moderators, which can be used to design group-creation policies such that direct impacts of demographic diversity and its team performance dimensions can be influenced to foster the required innovation performance.

Fig 1. Constructs of Marketing Innovation

Marketing should be based on particular strategies, which focus on overcoming prevailing innovation limitations, predict innovation penetration time, conduct market division, and lastly commercialize innovation effectively. The critical model of marketing approaches for innovation has been discussed by Ram [19]. The entire model has been presented in **Table 2**.

Table 2. Segmentation of Marketing Approaches for Innovation

	Coping Approach	Marketing Approach	Pricing Approach	Communication Approach	Product Approach
Image Barrier	-	-	-	Design a positive innovation image	Borrow the best brand image
Traditional Barrier	Comprehend and appreciate traditions	-	-	Train consumers, and utilize change agents	-
Risk Barrier	-	Enhance market exposure, and stimulate trial	-	Elicit testimonials and endorsements	Utilize a famous brand name
Value Barrier	-	-	Minimize price by reducing costs	-	Enhance product positioning and efficiency
Usage Barrier	-	Mandate usage	-	-	Design a model perspective and packaging, and incorporate innovation with preceding activities
Environmental Force Barrier	Respect country's environmental norms	-		Firm transparency concerning its manufacturing facility	-

Innovation Effect on Business Objectives

Literature by Bretschger [16] have evaluated how firms effectively design technological innovations, but there is a scarcity in research, which evaluates non-technological innovation, identified as 'marketing innovation'. The literature defines this term as the application of a novel marketing approach, including product design changes, product placement, product promotion, or the cost of goods and services. In addition, it is evident that business model objectives can be closely linked to marketing innovations, but some gaps are still in existence.

Camisón and Villar-López [17] discovered that marketing innovation are determined by learning capabilities and organizational memory, and assist companies to obtain competitive advantage. They identified three major factors, which enhance marketing innovation: customer partnering, referral marketing, and customer relationship management. Similarly, they identified model objectives like partner collaborations as a market innovation determinant.

Marketing and Innovation Goal Achievements

Aggarwal, Baker, and Joshi [18] review a collection of 37 journal articles to comprehend market and organizational innovation, and 41 other publications to examine innovation based on transformation of various groups of marketing mix. Some articles consider specialized market innovation dimensions, like pricing, and therefore significantly contribute to our knowledge of marketing innovation via these dimensions. **Fig 1** presents new products/services are the major focus on their research, encircled by the constructs of marketing innovations.

III. RESEARCH MODEL

Conceptual Model of Innovation-Based Performance

Technological innovation and its conceptualization in our study model as a sector-based capability, which stimulate the process of progressive transformation procedure within the mobile phone industry. The concept of innovation is also viewed as an enabling factor that achieves an activation limit, succeeded by expansion through marketing systems, only to be established as a quantifiable firm performance output. Our model considers asymmetry of premediated transmissions, which implies that not all innovation-oriented strategies result similarly to performance.

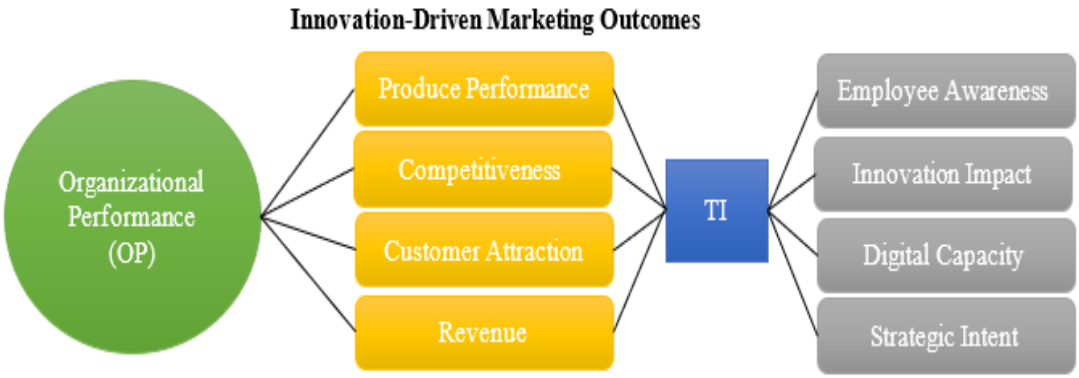

Fig 2. Research Model Conceptual Framework

The conceptual model has been shown in **Fig 2** with TI (Technological Innovation) at the base level, marketing strategy approaches in the mid-level, and organizational performance at the initial level as the output, with causal directional arrows showing the dependencies.

Structural Model Specification and Innovation-Sensitive Equations

Technological innovation i intensity within a firm is activated as a composite state according to staff awareness, strategic intent, and innovation impact perception. This state of activation is denoted by TI_i and the sole external stimulus of structural models. The method of changing technological innovations to product innovation speed is designed to be curvature-establishing as a feedback loop to identify the increase output innovation paradigm still limited in the mobile phone industry.

$$PIV_i = \delta_1 \ln\left(1+TI_i^{\kappa_1}\right) + \epsilon_{1i} \tag{1}$$

Volatility-corrected innovation feedback is calculated as adaptability in pricing approach, which considers market sensitivity and the competitive burden of expenses of technologies within a competitive consumer marketplace.

$$PSA_i = \delta_2 \frac{TI_i}{1+\sigma_m} + \epsilon_{2i} \tag{2}$$

The effectiveness of distributed models is defined as innovation-planning ratio determining the link between the merits of online channel integration, and logistics latency.

$$DSE_i = \delta_3 \frac{TI_i \cdot \omega_d}{1+\tau_l} + \epsilon_{3i} \tag{3}$$

The diffusion of innovation establishes the foundation of promotional receptiveness, which is determined by consumer digital involvement and administered by resistance to innovation messaging.

$$PRE_i = \delta_4 \, TI_i \, \phi_c \, e^{-\lambda_r} + \epsilon_{4i} \tag{4}$$

The efficiency outcomes of a firm are determined as a non-linear integration of innovation-oriented strategic approach, which can involve symmetrical contribution levels by marketing dimensions.

$$OP_i = \rho_1 PIV_i^{\eta_1} + \rho_2 PSA_i^{\eta_2} + \rho_3 DSE_i^{\eta_3} + \rho_4 PRE_i^{\eta_4} + \xi_i \tag{5}$$

Eq. (i) above is a clear expression of the experimental factuality of mobile phone market where marketing campaign success and product innovation speed tend to have unequal control over efficiency levels than distribution and pricing changes.

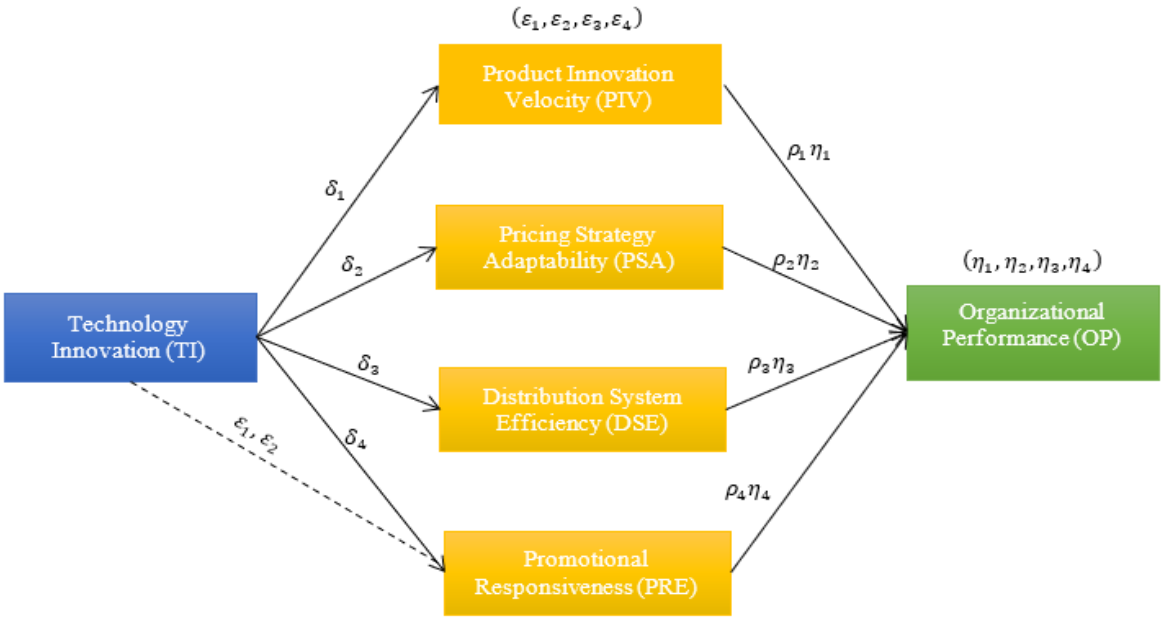

Fig 3. Structural Innovation Transmission Framework

The flowchart in **Fig 3** is used to postulate these non-linear routes where technological innovation intensity travels alongside differentiated strategic pathways to attaining organizational performance.

Decision, Estimation and Validation Process

The process of decision-making involves making analytical insights by establishing survey data, then creating and normalizing composite technological innovation indexes, as well as strategic feedback variables. The advent of conditional activation phase is attained to evaluate the degree of innovation intensity concerning the minimal operational limits, which is required to attain strategic sensitivity. Structural approximation is done to every innovation-based strategic approach once activation conditions have been attained. Decision-making nodes evaluate the statistical significance and stability of every transmission route, which do not exceed pre-determine consistency/significance criteria and are not integrated in the last performance aggregation stage.

The last decision-making phase identifies whether the general strategic effects bring in sustainable and significant positive transformation in organizational performance. In an event convergence is attain, the model will state innovation-based performance enhancement in the industry. On the contrary, when convergency is not attained, the model will state a feedback loop to re-compute strategic sensitivity parameters and innovation weights. The logical progression formula continued from data entry to activation of innovation, performance realization, and strategic transmission. The final recalibration or validation is shown in **Fig 4** on basis on empirical and system-level simulation rigor.

IV. RESULTS

Descriptive analysis focusses on distribution research of a single variable quantity. It is achieved through the establishment of particular tables that utilize unprocessed survey dataset. Different descriptive approaches have been employed to unprocessed data retrieved using questionnaires. Computations have been done using dispersion indicators such as maximum, minimum, range, standard deviation, and mean. In order to see how the firm's employees perceive the questions in the questionnaire, different pie and bar charts were created. **Fig 5** highlights the age bracket of respondents. Ages between 18 and 25 years old represented 21% of the responses, followed by 62.1%, which accounted an age group of 26 to 35 years old, and 5.6%, which represented age group above 50 years old.

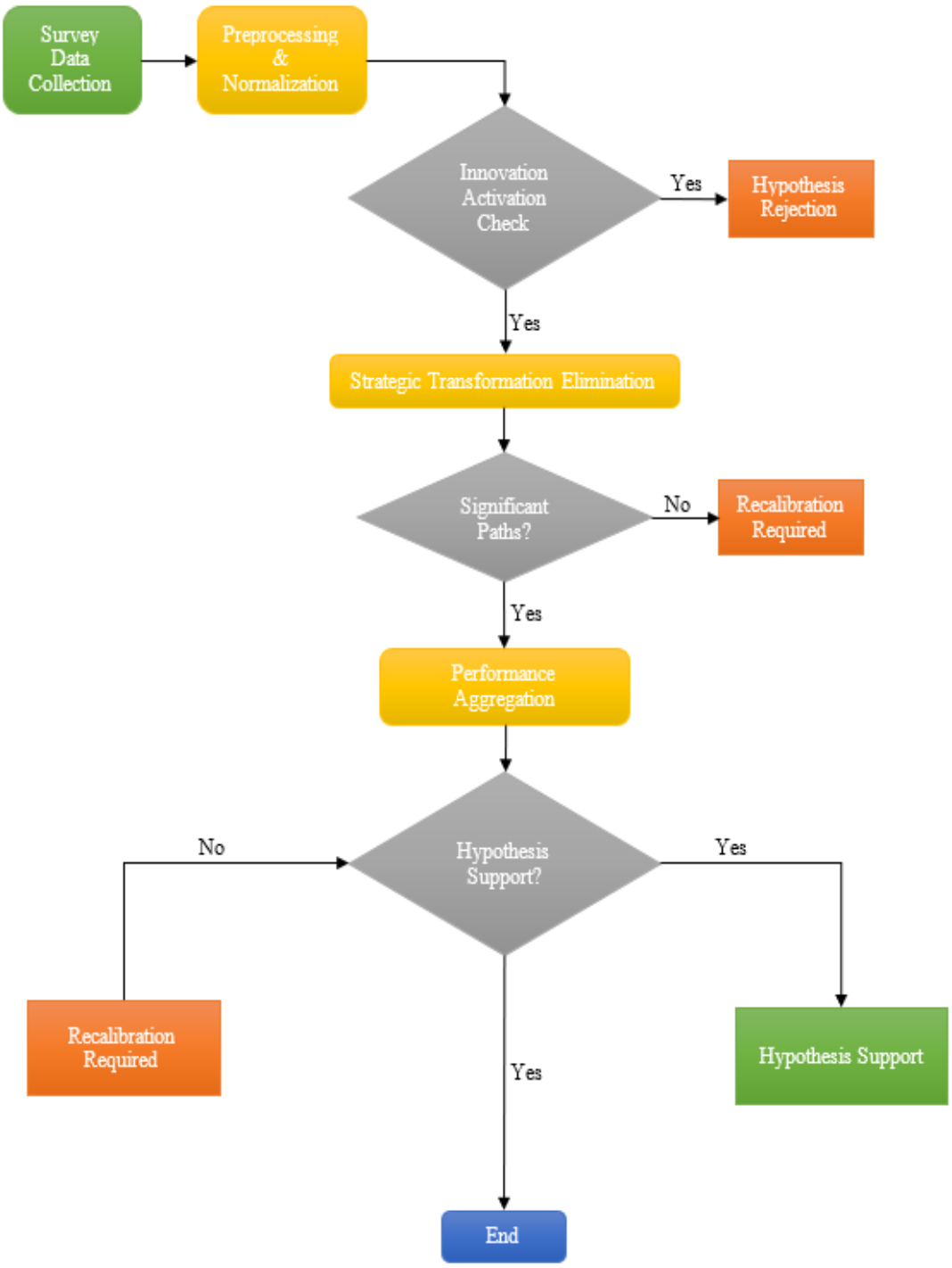

Fig 4. Innovation Impact Assessment Decision Flow

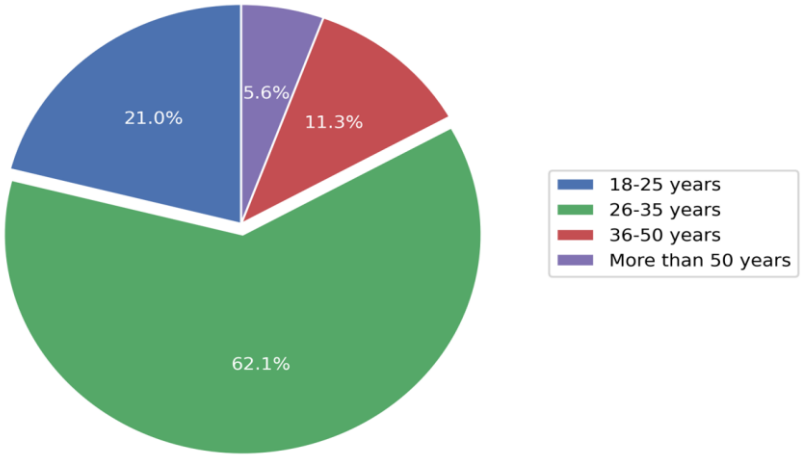

Fig 5. Respondent's Distribution Based on Age Group

The occurrence of participants' educational qualifications is illustrated in **Fig 6**. Graduates, postgraduates, and professionals accounted for 52.8%, 27.2%, and 20%, respectively.

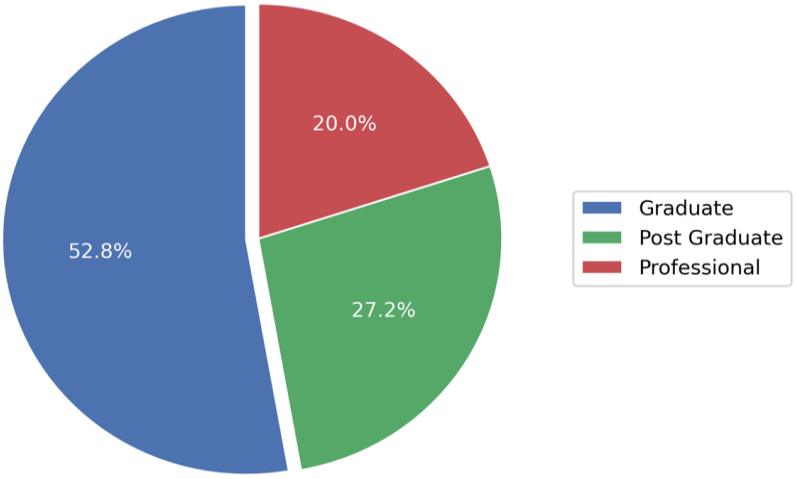

Fig 6. Respondent's Classification Based on Academic Qualifications

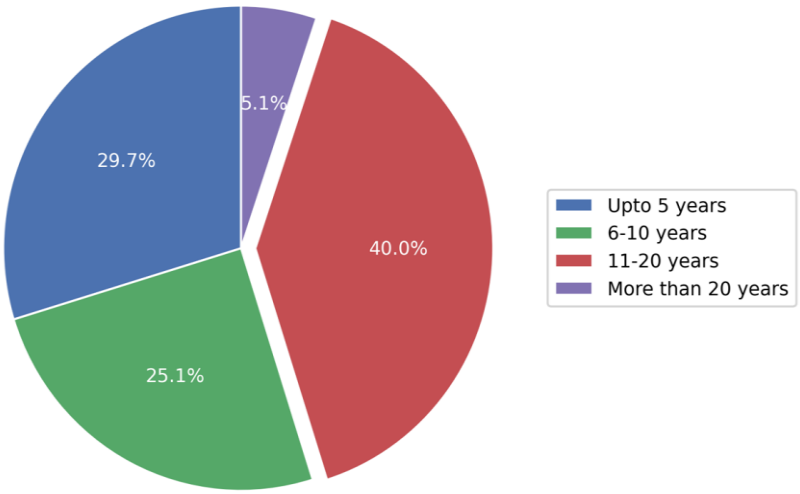

Fig 7. Respondents' Distribution Based on Job Experience

The academic qualifications of respondents, which was classified into three clusters according to their qualification, is illustrated in **Fig 7**. Most of the participants (accounting for 47.7%), have a master's degree. Approximately 37% of respondents have a bachelor's degree, whereas the remaining 15% have degrees, which are not bachelor's or masters.

Fig 8 illustrates the participants' work experience. From the list of participants, 5.1% had worked for a firm for more than 20 years, 40% had worked 11-20 years, 25.1% for 6-10 years, and 29.7% for up to 5 years.

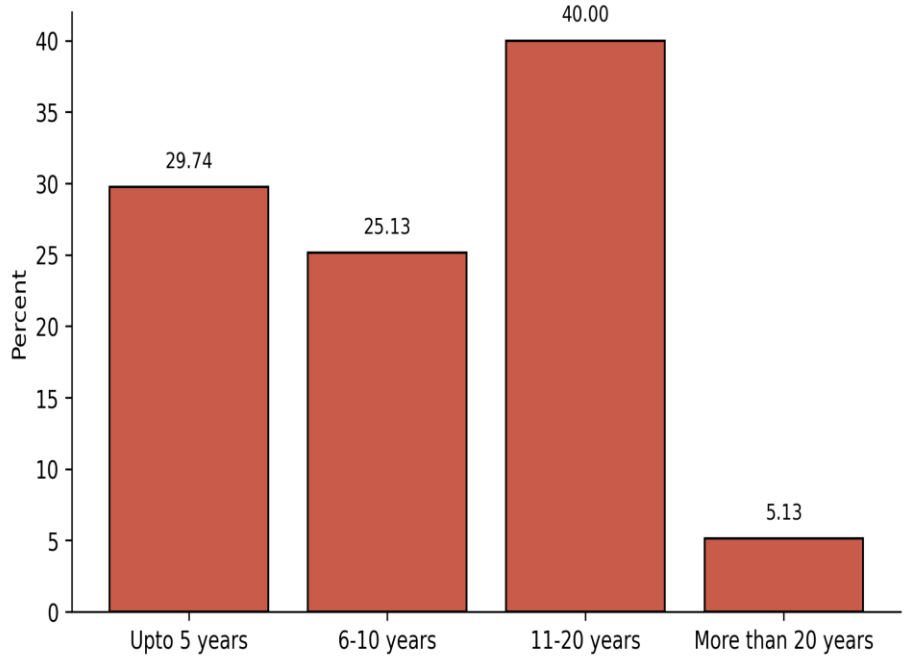

Fig 8. Respondents' Classification Based on Geographical Location

Our study shows that 94.9% of participants had satisfactory opinions concerning how technological innovation impacted business, while only 5.11% had unsatisfactory opinions concerning technological innovations impacting the mobile phone sector. This shows that most of the participants believe technological advancement is changing the industry.

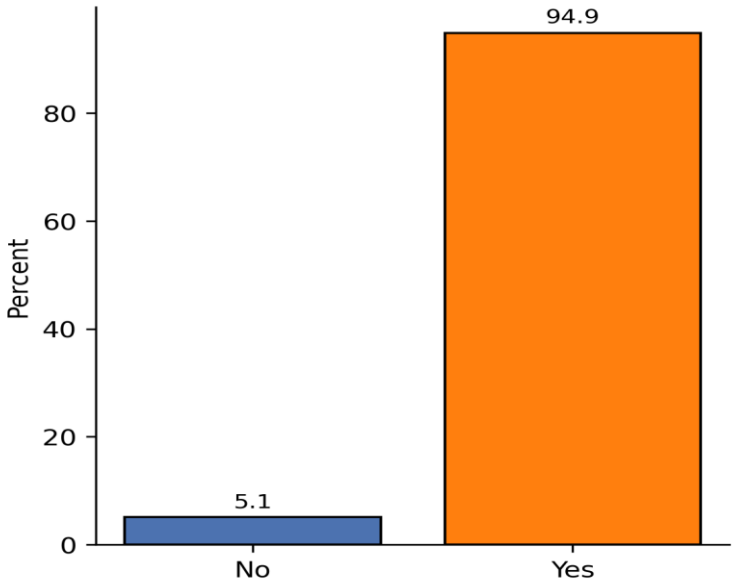

Fig 9. Effect of Technological Innovations on The Mobile Phone Sector

The 5 clusters into which the participants' monthly income was sub-divided are illustrated in **Fig 9**. Approximately 5.1% of all participants earn up to 15,000 rupees/month. The remaining 94% of the participants had a family monthly income of more 45,000 rupees. **Fig 10** illustrates the degree of innovation awareness of the participants.

Various companies are designing, advancing, and implementing innovative digitalized models in relation to the challenges and opportunities presented in digital transformation. The possibilities presented by these models is greatly impacted by unpredictable and unstable "digital" setting, mostly if firms presume digital disruption and transformation as threats instead of opportunities. **Fig 11** illustrates the effect of technology innovation within the mobile phone sector.

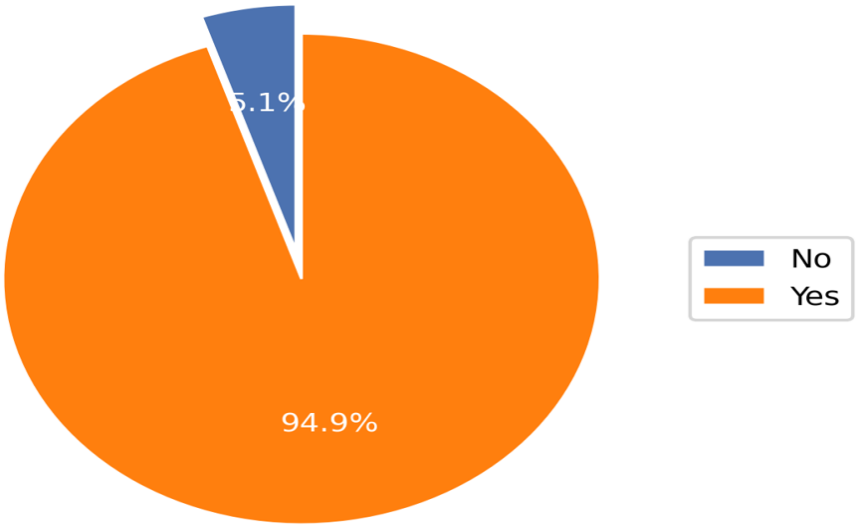

Fig 10. Innovation Awareness Among Respondents

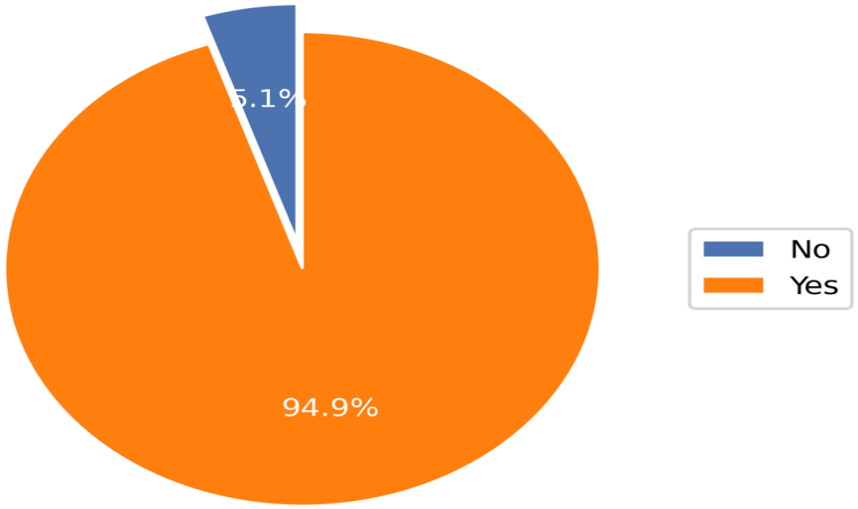

Fig 11. Effect of Technology Innovation

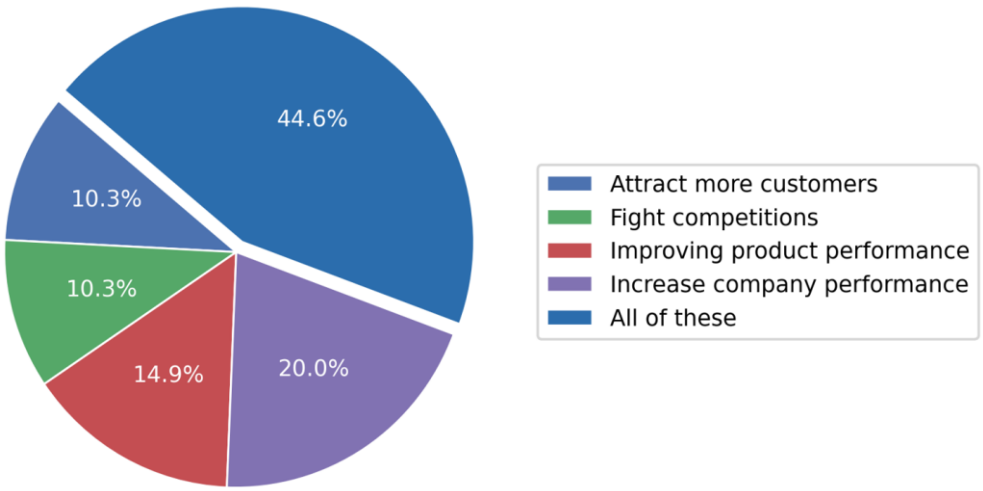

Fig 12. Objective to Participate in Technology Innovation

Based on the perception of participants regarding how firms employ technology innovation, approximately 14% of them think it is beneficial in enhancing product performance. 10.3% consider it beneficial in aiding completion, 10.3% consider it essential for attracting more potential customers, 20% view it as a money-making opportunity, and 44.6% believe that

their company needs it to achieve organizational goals and objectives. **Fig 12** illustrates the firm's objective to get involved in technology innovation.

Regarding how firms utilize technology innovation, participants consider that it enhances product performance (14.9%), help them to enhance competitive rivalry (10.3%), attract more consumers (10.3%), boost the company's revenue (20%), and helps achieve organizational goals (44.6%). **Fig 13** illustrates the accomplishment of marketing objectives using technological innovation.

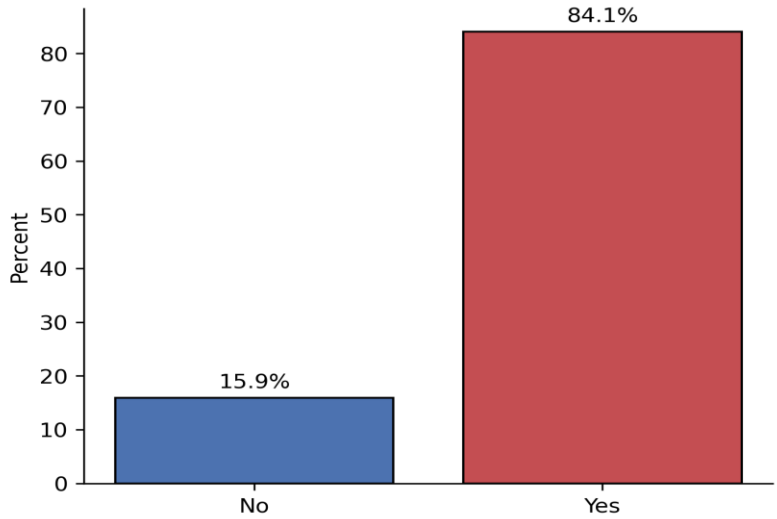

Fig 13. Accomplishment of Marketing Objectives Via Technological Innovation

We found out that 84.1% of the participants agree that technology innovation assist advertisers achieve their goals, while 15.8% disagree. This shows that innovation is beneficial to companies when it comes to advancing their marketing strategy to stimulate organization growth [20]. Based on the data we collected from retailers and businesses, technology innovation significantly and directly affects sales/marketing, product promotion, price/distribution strategy, and product innovation in the mobile phone sector.

V. CONCLUSION

Our study concluded that technology innovation is significant for organizational performance of the mobile phone sector. The structural and conceptual model indicate that innovation must attain standardized activation limit before it can yield the required impacts through market processes. The speed of product innovation and receptiveness of advertisements is considered as one of the best channels where innovation has a firm-level impact while distribution efficiency and pricing factors have minimal impacts. Data from employees indicate that there is good understanding among the staff concerning the positive role of technology innovation, and it relates to revenue generation, customer acquisition, and perceived competitiveness. Generally, this research highlights the relevance of managing innovation processes strategically to attain the required market flexibility and organizational performance.

CRediT Author Statement

The author reviewed the results and approved the final version of the manuscript.

Data Availability

No data was used to support this study.

Conflicts of Interests

The authors declare no conflict of interest.

Funding

No funding agency is associated with this research.

Competing Interests

There are no competing interests.

References

[1]. Oke, "Innovation types and innovation management practices in service companies," International Journal of Operations & Production Management, vol. 27, no. 6, pp. 564–587, May 2007, doi: 10.1108/01443570710750268.

[2]. R. Dvir and E. Pasher, "Innovation engines for knowledge cities: an innovation ecology perspective," Journal of Knowledge Management, vol. 8, no. 5, pp. 16–27, Oct. 2004, doi: 10.1108/13673270410558756.

[3]. J. Henri, "Performance measurement and organizational effectiveness: bridging the gap," Managerial Finance, vol. 30, no. 6, pp. 93–123, Jun. 2004, doi: 10.1108/03074350410769137.
[4]. J. MacVaugh and F. Schiavone, "Limits to the diffusion of innovation," European Journal of Innovation Management, vol. 13, no. 2, pp. 197–221, Apr. 2010, doi: 10.1108/14601061011040258.
[5]. S. A. Sanni, Z. A. Ngah, N. H. A. Karim, N. Abdullah, and M. Waheed, "Using the diffusion of innovation concept to explain the factors that contribute to the adoption rate of e-journal publishing," Serials Review, vol. 39, no. 4, pp. 250–257, Nov. 2013, doi: 10.1016/j.serrev.2013.10.001.
[6]. X. Lan, Z. Li, and Z. Wang, "An investigation of the innovation efficacy of Chinese photovoltaic enterprises employing three-stage data envelopment analysis (DEA)," Energy Reports, vol. 8, pp. 456–465, Jun. 2022, doi: 10.1016/j.egyr.2022.05.093.
[7]. J. Chai, W. Fan, and J. Han, "Does the energy efficiency of power companies affect their industry status? A DEA analysis of listed companies in thermal power sector," Sustainability, vol. 12, no. 1, p. 138, Dec. 2019, doi: 10.3390/su12010138.
[8]. T.-X. Lin, Z.-H. Wu, and J.-J. Yang, "The evaluation of innovation efficiency of China's high-tech manufacturing industry based on the analysis of the three-stage network DEA-Malmquist model," Production Planning & Control, pp. 1–13, Mar. 2023, doi: 10.1080/09537287.2023.2165189.
[9]. K. Kalapouti, K. Petridis, C. Malesios, and P. K. Dey, "Measuring efficiency of innovation using combined Data Envelopment Analysis and Structural Equation Modeling: empirical study in EU regions," Annals of Operations Research, vol. 294, no. 1–2, pp. 297–320, Dec. 2017, doi: 10.1007/s10479-017-2728-4.
[10]. Zhang, Y. Luo, and Y.-H. Chiu, "Efficiency evaluation of China's high-tech industry with a multi-activity network data envelopment analysis approach," Socio-Economic Planning Sciences, vol. 66, pp. 2–9, Jul. 2018, doi: 10.1016/j.seps.2018.07.013.
[11]. Firsova, G. Chernyshova, and R. Tugusheva, "Approaches to Efficiency Assessing of Regional Knowledge-Intensive Services Sector Development using data Envelopment analysis," Mathematics, vol. 10, no. 2, p. 173, Jan. 2022, doi: 10.3390/math10020173.
[12]. J. Hojnik, M. Ruzzier, M. K. Ruzzier, B. Sučić, and B. Soltwisch, "Challenges of demographic changes and digitalization on eco-innovation and the circular economy: Qualitative insights from companies," Journal of Cleaner Production, vol. 396, p. 136439, Feb. 2023, doi: 10.1016/j.jclepro.2023.136439.
[13]. B.-O. Linnér and V. Wibeck, "Drivers of sustainability transformations: leverage points, contexts and conjunctures," Sustainability Science, vol. 16, no. 3, pp. 889–900, Apr. 2021, doi: 10.1007/s11625-021-00957-4.
[14]. J. A. Antončič, J. Hojnik, M. Ruzzier, M. K. Ruzzier, and B. Soltwisch, "The role of demographic changes and digitalization in Eco-Innovations and their effects on the growth of companies," Sustainability, vol. 16, no. 14, p. 6203, Jul. 2024, doi: 10.3390/su16146203.
[15]. T. Tshetshema and K.-Y. Chan, "A systematic literature review of the relationship between demographic diversity and innovation performance at team-level," Technology Analysis and Strategic Management, vol. 32, no. 8, pp. 955–967, Mar. 2020, doi: 10.1080/09537325.2020.1730783.
[16]. L. Bretschger, "Economics of technological change and the natural environment: How effective are innovations as a remedy for resource scarcity?," Ecological Economics, vol. 54, no. 2–3, pp. 148–163, Apr. 2005, doi: 10.1016/j.ecolecon.2004.12.026.
[17]. Camisón and A. Villar-López, "Non-technical innovation: Organizational memory and learning capabilities as antecedent factors with effects on sustained competitive advantage," Industrial Marketing Management, vol. 40, no. 8, pp. 1294–1304, Oct. 2011, doi: 10.1016/j.indmarman.2011.10.001.
[18]. Aggarwal, H. K. Baker, and N. A. Joshi, "Organizational Innovation as Business Strategy: A review and Bibliometric analysis," Journal of the Knowledge Economy, vol. 16, no. 2, pp. 6550–6576, Feb. 2024, doi: 10.1007/s13132-024-01830-2.
[19]. S. Ram, "Successful Innovation using strategies to reduce consumer resistance An empirical test," Journal of Product Innovation Management, vol. 6, no. 1, pp. 20–34, Mar. 1989, doi: 10.1111/1540-5885.610020.
[20]. Naidoo, "Firm survival through a crisis: The influence of market orientation, marketing innovation and business strategy," Industrial Marketing Management, vol. 39, no. 8, pp. 1311–1320, Mar. 2010, doi: 10.1016/j.indmarman.2010.02.005.