



Original Article

Sustainable Innovation and Digital Transformation as Drivers of Competitive Advantage: Evidence from an Emerging Market Firm

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Citations: Asrori, A., & Halik, A. (2025). Sustainable Innovation and Digital Transformation as Drivers of Competitive Advantage: Evidence from an Emerging Market Firm. *Global Journal of Business, Economics & Social Development*, 3(2), 58-68.

Academic Editor: Assoc. Professor Dr. Agus Sukoco.

Received: 7 August 2025

Revised: 15 October 2025

Accepted: 8 November 2025

Abstract: This study examines how sustainable innovation and digital transformation contribute to corporate competitive advantage within an emerging market context. A qualitative case study approach was applied to PT. Mayora Indah Tbk., a leading Indonesian FMCG company. Data were collected through semi-structured interviews with top and middle management, supported by internal company documents and secondary industry sources. The analysis employed thematic coding using NVivo 14, combined with descriptive analysis and data triangulation to ensure validity. The findings indicate that sustainable innovation is embedded in product development, operational efficiency, and organizational strategy, while digital transformation enhances decision-making, production processes, and market responsiveness. Six key themes emerged, including innovation as a strategic driver, responsiveness to consumer preferences, digital transformation, cultural challenges, external collaboration, and performance outcomes. The results show that innovation leads to measurable improvements, including increased sales and operational efficiency, but its implementation is constrained by organizational resistance and challenges in integrating technology. The study concludes that sustainable innovation and digital transformation operate as complementary capabilities that jointly strengthen long-term competitiveness. Effective implementation requires alignment between strategic vision, technological adoption, organizational culture, and external partnerships. These findings make theoretical contributions by integrating innovation and digitalization within a unified framework and offer practical insights for firms to enhance competitiveness in dynamic, resource-constrained environments.

Keywords: Sustainable innovation; Digital transformation; Competitive advantage; Emerging markets.



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1. Introduction

Contemporary research in strategic management increasingly positions sustainable innovation and digital transformation as central determinants of firm competitiveness. Recent empirical and review-based

studies consistently show that green innovation, defined through eco-friendly product design, cleaner production processes, and sustainable packaging, enhances firm performance by improving operational efficiency, strengthening brand value, and increasing market acceptance (Hayat & Qingyu, 2024; Saxena et al., 2024; Trizotto et al., 2024). Firms that embed environmental considerations into innovation activities are more likely to develop differentiated capabilities that support long-term competitive advantage. This relationship is further reinforced by evidence that sustainability-oriented strategies, when aligned with corporate objectives and stakeholder expectations, generate both financial and non-financial performance gains (Zahra et al., 2025; Osorio, 2024). The role of green innovation extends beyond internal efficiency gains. It operates as a strategic response to institutional pressures and regulatory environments.

Empirical findings indicate that environmental regulations can stimulate innovation and enhance international competitiveness, particularly in pollution-intensive sectors (Fabrizi et al., 2024). Similarly, institutional support and legitimacy have been shown to strengthen the impact of green innovation on competitive advantage, especially when combined with advanced technological capabilities such as big data analytics (Dong et al., 2024). These findings suggest that sustainable innovation is not an isolated firm-level activity but a multidimensional process shaped by external governance structures, market expectations, and technological infrastructure. At the firm level, the integration of digital technologies has become a critical enabler of sustainable innovation. Digital transformation facilitates real-time data processing, predictive analytics, and automation, which collectively enhance decision-making quality and operational responsiveness. Empirical evidence confirms that digitalization, when combined with green capabilities, significantly improves both environmental and financial performance outcomes (Li et al., 2024).

Furthermore, innovation strategies that incorporate digital tools, customer-centric platforms, and collaborative ecosystems tend to accelerate product development cycles and reduce market uncertainty (Prayitno, 2023). These developments indicate that digital transformation and sustainable innovation are increasingly interdependent, forming a combined strategic mechanism that drives competitiveness in modern industries. From a theoretical perspective, the Resource-Based View remains a dominant framework for explaining how firms achieve sustained competitive advantage through unique and valuable resources. Recent studies extend this framework by incorporating green capabilities, dynamic capabilities, and technological competencies as strategic assets (Zhou, 2025; Zhu et al., 2023). Within this extended perspective, sustainable innovation capabilities are viewed as complex, path-dependent resources that are difficult to imitate. ESG-oriented strategies further complement this view by linking innovation outcomes with stakeholder expectations, governance quality, and long-term firm survival (Cabaleiro-Cerviño & Mendi, 2024; Niu & Wang, 2024). This theoretical integration highlights the need to understand innovation not only as a technological process but also as a strategic alignment between environmental responsibility, organizational capabilities, and market positioning.

Despite the growing body of literature, several critical gaps remain. First, existing studies often examine sustainable innovation, digital transformation, and competitive advantage in isolation, with limited integration of these constructs into a unified analytical framework. Second, empirical evidence is frequently derived from single-country or single-industry contexts, which restricts the generalizability of findings (Garzia et al., 2025). Third, longitudinal analyses that capture the dynamic evolution of innovation capabilities over time remain limited. Fourth, the interaction between institutional pressures, technological adoption, and organizational culture requires further investigation, particularly in emerging market contexts where resource constraints and structural challenges are more pronounced (Xiao et al., 2023; Ateeq et al., 2024). Given these gaps, this study aims to examine how sustainable innovation and digital transformation jointly contribute to competitive advantage within an emerging market firm. The study focuses on PT. Mayora Indah Tbk., one of the largest food and beverage companies in Indonesia. This firm provides a relevant empirical context due to its strong market presence, continuous product innovation, and adoption of advanced production and marketing technologies. The analysis seeks to identify how the company integrates sustainable practices into product development, enhances operational efficiency through digital technologies, and responds to rapidly changing consumer preferences.

Innovation plays a critical role in ensuring firm survival and long-term growth, particularly in highly competitive and dynamic industries. Firms that continuously invest in research and development, adopt new technologies, and align innovation strategies with market demands are better positioned to sustain competitive advantage. PT. Mayora Indah Tbk. demonstrates these characteristics through consistent expansion into international markets and adaptability to evolving consumer trends. The company's approach reflects a strategic combination of exploration, through new product development, and exploitation, through process optimization and efficiency improvements. The significance of this study lies in both its theoretical and practical contributions. Theoretically, it advances the integration of sustainable innovation, digital transformation, and competitive advantage within a unified framework grounded in contemporary strategic management theories. In practice, it provides firms operating in emerging markets with insights on how to design and implement innovation strategies that balance sustainability objectives

with economic performance. In addition, the study highlights key challenges in innovation implementation, particularly resistance to organizational change and the complexity of integrating new technologies with existing systems. Addressing these challenges is essential for firms seeking to achieve sustainable competitiveness in the global economy.

2. Literature Review

2.1. Sustainable Innovation and Competitive Advantage

The literature consistently identifies sustainable innovation as a strategic mechanism that enhances firm competitiveness. Sustainable innovation integrates environmental and social considerations into product design, production processes, and business models. Empirical evidence shows that green innovation strategies, including product, process, and service innovation, significantly improve sustainable innovative performance and competitive advantage (Hayat & Qingyu, 2024). These outcomes emerge through efficiency gains, cost reduction, and stronger market differentiation. Similarly, cross-industry analyses confirm that sustainability practices positively affect firm performance, though their effectiveness depends on contextual factors such as industry characteristics and institutional environments (Osorio, 2024; Zahra et al., 2025).

A growing body of research emphasizes that sustainable innovation is not limited to incremental improvements. It also involves radical transformations in production systems and business models. Evidence from the food industry indicates that firms adopting structured sustainability strategies and process innovation achieve superior growth and resilience (Garzia et al., 2025). This finding supports the argument that sustainability-driven innovation enhances long-term adaptability. Moreover, sustainable innovation contributes to both environmental outcomes and financial performance, reinforcing the dual objective of value creation and ecological responsibility (Ateeq et al., 2024). However, the literature reveals inconsistencies in measuring the direct impact of sustainable innovation on competitiveness. Some studies highlight strong positive effects, while others emphasize conditional relationships shaped by firm capabilities, governance quality, and stakeholder alignment (Zahra et al., 2025). This suggests that sustainable innovation alone is insufficient. Its effectiveness depends on complementary organizational and strategic factors.

2.2. Green Innovation, Institutional Pressure, and Market Dynamics

Green innovation has emerged as a central dimension of sustainable innovation. It reflects firms' responses to environmental challenges and regulatory pressures. Empirical studies confirm that environmental regulation can stimulate innovation and improve international competitiveness, supporting the Porter hypothesis (Fabrizi et al., 2024). This relationship becomes stronger in pollution-intensive industries, where regulatory pressure creates incentives for technological upgrading. Institutional factors also play a critical role in shaping green innovation outcomes. External pressures such as government support, social legitimacy, and industry norms influence firms' innovation behavior (Dong et al., 2024). Research shows that green innovation mediates the relationship between institutional forces and competitive advantage, indicating that firms translate external pressures into strategic capabilities. Furthermore, institutional and ethical drivers jointly influence strategic green innovation behavior, suggesting that internal values and external constraints interact in complex ways (Xiao et al., 2023). Despite these advances, the literature often treats institutional factors as exogenous drivers without fully examining how firms internalize these pressures into their innovation processes. Limited attention is given to the organizational mechanisms that convert institutional demands into sustained competitive advantage. This gap indicates the need for firm-level analysis that connects external pressures with internal capabilities.

2.3. Digital Transformation and Innovation Capability

Digital transformation has become a critical enabler of innovation in modern organizations. It enhances firms' ability to process information, optimize operations, and respond to market changes. Empirical evidence shows that digitalization, including big data analytics and artificial intelligence, strengthens the relationship between innovation and performance (Li et al., 2024). Digital tools support real-time decision making and improve efficiency across the value chain. Innovation strategies in the digital era increasingly combine technological adoption with customer-centric approaches. Firms that invest in digital infrastructure and data-driven marketing achieve higher levels of customer satisfaction and market responsiveness (Prayitno, 2023). In addition, digital transformation facilitates collaboration with external partners, accelerating knowledge exchange and innovation.

The interaction between digital transformation and green innovation is particularly important. Studies indicate that digital technologies amplify the impact of green innovation by overcoming technological barriers and enhancing scalability (Dong et al., 2024). This suggests that digital and sustainable innovations

are complementary rather than independent processes. However, the literature remains fragmented. Many studies examine digital transformation and sustainable innovation separately, without developing an integrated framework. This limit understanding of how digital capabilities and sustainability-oriented innovation jointly influence competitive advantage. Furthermore, empirical studies often rely on cross-sectional data, which restricts analysis of dynamic capability development over time.

2.4. Theoretical Perspectives: RBV, Dynamic Capabilities, and ESG

The Resource-Based View provides a foundational framework for explaining the link between innovation and competitive advantage. It posits that firms achieve superior performance through valuable, rare, and inimitable resources. Recent extensions incorporate green capabilities, technological competencies, and innovation capacity as strategic resources (Zhou, 2025). Within this framework, sustainable innovation is viewed as a capability that enhances long-term competitiveness. Dynamic capabilities theory further explains how firms adapt to changing environments by integrating, reconfiguring, and renewing resources. Empirical evidence shows that green dynamic capabilities and technology adoption significantly influence innovation outcomes and competitive advantage (Zhu et al., 2023). These capabilities enable firms to respond to environmental challenges while maintaining operational efficiency.

In parallel, ESG-oriented research highlights the importance of aligning innovation strategies with environmental, social, and governance objectives. ESG-driven firms demonstrate stronger innovation performance, higher productivity, and improved survival rates (Cabaleiro-Cerviño & Mendi, 2024). ESG practices also enhance green total factor productivity, primarily by improving technical efficiency (Niu & Wang, 2024). These findings suggest that sustainability and governance are integral to innovation performance. Despite these theoretical advances, integration across frameworks remains limited. RBV, dynamic capabilities, and ESG perspectives are often applied independently. Few studies provide a unified model that explains how these theories jointly shape sustainable innovation and competitive advantage. This fragmentation weakens theoretical coherence and limits empirical application.

The literature demonstrates that sustainable, green, and digital innovation each contributes to competitive advantage. However, their combined effects are not sufficiently explored. Most studies focus on bilateral relationships, such as sustainability and performance or digitalization and efficiency, rather than examining their joint interaction. Several key gaps emerge. First, there is limited integration of sustainable innovation and digital transformation within a single analytical framework. Existing studies rarely examine how these two constructs interact to create competitive advantage. Second, the role of organizational culture and change management in facilitating innovation remains underexplored, despite evidence that resistance to change can hinder innovation implementation. Third, empirical research is heavily concentrated in developed economies or specific industries, limiting insights into emerging market contexts where institutional and resource constraints differ significantly. Fourth, longitudinal studies that capture the evolution of innovation capabilities over time are scarce, reducing understanding of sustainability as a dynamic process.

In addition, the mechanisms through which firms translate external pressures, such as regulation and institutional expectations, into internal innovation capabilities require further investigation. Current research often identifies relationships but does not fully explain the processes underlying capability development. Finally, there is a need for more firm-level case studies that provide in-depth analysis of how sustainable innovation strategies are implemented in practice. Based on these gaps, this study contributes by integrating sustainable innovation and digital transformation within a unified framework and examining their joint impact on competitive advantage in an emerging market firm. It also provides empirical insights into the organizational processes that support innovation implementation, thereby addressing both theoretical and contextual limitations in the existing literature.

3. Materials and Methods

3.1. Research Design and Approach

This study adopts a qualitative descriptive case study design to examine the relationship between sustainable innovation and corporate competitiveness. The qualitative design allows detailed exploration of organizational processes, strategic decisions, and contextual factors that shape innovation outcomes. The case study approach enables in-depth analysis of a single firm, which is appropriate for capturing complex interactions between innovation strategy, technology adoption, and competitive performance. The study focuses on PT. Mayora Indah Tbk., Indonesia, a leading firm in the fast-moving consumer goods sector. The company was selected for its consistent implementation of sustainable innovation across product development and operational processes. Its strong market position and international presence provide a relevant empirical context for examining how innovation strategies contribute to competitiveness in a dynamic industry.

3.2. Data Sources and Participants

The study relies on multiple data sources to ensure a comprehensive analysis. Primary and secondary data are combined to capture both strategic perspectives and operational practices. First, primary data were obtained from key organizational actors. Participants were divided into two groups. The first group consisted of top management, including executive-level leaders who are directly involved in formulating innovation strategies and corporate policies. The second group included middle management, such as managers and division heads in research and development, marketing, and production. These participants are responsible for translating strategic objectives into operational implementation. Second, internal company documents were analyzed. These included annual reports, research and development reports, and formal documentation related to innovation strategies and sustainability policies. These materials provide objective evidence of the company's innovation activities and strategic priorities. Third, secondary data were collected from external sources. These included industry reports, market analyses, and relevant academic literature on sustainable innovation in the FMCG sector. These sources provide contextual understanding and support the interpretation of primary findings.

3.3. Data Collection Methods

Data were collected using three complementary techniques to ensure depth and reliability. Semi-structured interviews were conducted with both top and middle management. The interview protocol focused on several key areas: the firm's approach to sustainable innovation, the role of digital technologies in product and process development, challenges in implementing innovation, and the impact of innovation on competitive performance in domestic and international markets. This format allowed flexibility while maintaining consistency across participants. Document analysis was carried out to examine internal reports and strategic documents. This process aimed to validate interview findings and identify patterns in innovation practices, investment priorities, and performance indicators. Particular attention was given to data related to sustainable product development and sales performance. Secondary data analysis complemented primary data. External reports and prior studies were reviewed to situate the case within broader industry trends and to support analytical interpretation.

3.4. Data Analysis

Data analysis followed a structured and systematic process. Thematic analysis was applied using NVivo 14 to identify patterns and key themes from interview transcripts and documentary evidence. The analysis proceeded through coding stages, including initial coding to identify meaningful units, categorization to group related concepts, and theme development to capture overarching patterns in innovation strategy and competitiveness. Descriptive analysis was used to interpret company performance data and contextual information. This approach helped explain how innovation strategies influence operational efficiency, market positioning, and growth trends. Source triangulation was applied to enhance analytical rigor. Findings from interviews, internal documents, and secondary sources were compared to ensure consistency and reduce bias. This process strengthens the credibility of the results by validating evidence across multiple sources.

3.5. Reliability and Validity

The study ensures reliability and validity through several procedures. Data triangulation was employed by integrating multiple sources of evidence, including interviews, company documents, and external data. This approach improves accuracy and reduces the risk of single-source bias. In addition, iterative validation was conducted throughout the analysis. Interview findings were continuously cross-checked with documentary evidence and existing literature to ensure coherence and logical consistency. The interpretation of the data was grounded in established theoretical frameworks on innovation and competitiveness, which further supports analytical validity.

4. Results

The analysis was conducted using a thematic analysis approach with NVivo 14. The process involved several stages: (1) data import, including interview transcripts from top and middle management at PT. Mayora Indah Tbk. Indonesia; (2) open coding to identify meaningful units from informant statements; (3) axial coding to group codes into conceptual categories; (4) selective coding to establish key themes that represent the company's strategic innovation patterns; and (5) matrix coding queries to compare themes across management levels (top versus middle).

Table 1. Results of Thematic Analysis (Open Coding) Using NVivo 14

Data Quote (Summary)	Initial Code (Node)
“Innovation is the key to survival and growth.”	Innovation as competitiveness
“Consumer preferences are changing very rapidly.”	Changes in consumer preferences
“Automation and robotics increase efficiency.”	Production automation
“Old culture creates resistance to change.”	Organizational cultural resistance
“Big data and AI help decision-making.”	Utilization of data and AI
“Collaboration with startups and universities.”	External collaboration
“Market testing is done before launch.”	Innovation risk mitigation
“Healthy and environmentally friendly products increased in sales by 15%.”	The impact of innovation on performance

Table 1 presents the initial stage of qualitative data analysis, where raw interview excerpts were systematically transformed into conceptual codes through open coding. This process identifies meaningful units of information and assigns them to representative nodes that reflect the firm's core dimensions of sustainable innovation and competitiveness. The first code, innovation as competitiveness, reflects a strategic orientation in which innovation is not treated as a supporting activity but as a central driver of firm survival and growth. This indicates that management perceives innovation capability as a core resource that sustains long-term market positioning. It also implies alignment with strategic management logic, where innovation is embedded in corporate vision rather than isolated within functional units. The second code, changes in consumer preferences, highlights the dynamic nature of market demand. Rapid shifts in consumer expectations, particularly toward health-conscious and environmentally friendly products, exert external pressure that continuously shapes innovation priorities. This suggests that the firm adopts a market-driven innovation approach, in which responsiveness to consumer trends is a critical determinant of competitiveness. The third code, production automation, captures the role of technological advancement in improving operational efficiency. The reference to automation and robotics indicates the firm's commitment to process innovation. This reduces production costs, enhances consistency, and increases scalability. It also reflects the integration of digital technologies into core operations, which is essential for maintaining efficiency in competitive industries.

The fourth code, organizational cultural resistance, identifies internal barriers to innovation. Resistance emerges from established routines, legacy practices, and employee reluctance to adopt new technologies. This code underscores that innovation is not purely technical but also organizational. Effective change management and cultural adaptation are necessary to ensure the successful implementation of innovation strategies. The fifth code, utilization of data and AI, reflects the firm's adoption of advanced digital tools to support decision-making. The use of big data and artificial intelligence enhances analytical capability, improves forecasting accuracy, and supports strategic planning. This indicates a transition toward data-driven management, where information becomes a key asset in innovation processes. The sixth code, external collaboration, emphasizes the importance of partnerships in accelerating innovation. Collaboration with startups and universities enables access to new knowledge, technologies, and research capabilities. This reflects an open innovation model, where firms extend beyond internal resources to enhance their innovation capacity and reduce development time.

The seventh code, innovation risk mitigation, highlights structured approaches to managing uncertainty. Market testing prior to product launch indicates the use of validation mechanisms to reduce failure risk. This suggests that innovation processes are systematically managed, with emphasis on experimentation, feedback, and iterative improvement. The final code, the impact of innovation on performance, provides direct evidence of the outcomes of innovation activities. The reported increase in sales of environmentally friendly products demonstrates that sustainable innovation generates measurable business value. This code links innovation efforts to tangible performance indicators, including revenue growth and market acceptance. The open coding results reveal that sustainable innovation within the firm is multidimensional. It involves strategic orientation, market responsiveness, technological adoption, organizational transformation, and external collaboration. These dimensions collectively shape the firm's ability to achieve and sustain competitive advantage.

Table 2. Results of Axial Coding Matrix (Grouping of Codes into Categories)

Category	Related Code
Innovation Strategy	Innovation as competitiveness, innovation vision
Innovation Challenge	Changing consumer preferences, cultural resistance, and technological risks
Product Innovation Process	R&D, market testing, product differentiation
Digital Transformation	Production automation, big data, AI, IoT
Culture & HR	Employee training, mindset change
Collaboration	Startups, universities, technology partners
Performance & Impact	Increased sales, operational efficiency

Table 2 presents the second stage of qualitative analysis, where initial codes derived from open coding were systematically grouped into higher-level conceptual categories. This axial coding process establishes relationships between discrete codes and organizes them into coherent dimensions that explain the structure of sustainable innovation and its link to competitiveness. The first category, innovation strategy, integrates codes such as innovation as a source of competitiveness and innovation vision. This category reflects the firm's strategic orientation toward innovation as a core element of long-term positioning. It indicates that innovation is embedded in corporate planning and aligned with organizational goals. The presence of a clear innovation vision suggests that management actively directs resources toward sustaining competitive advantage through continuous improvement and strategic renewal.

The second category, innovation challenge, captures constraints that affect the implementation of innovation. It includes changing consumer preferences, cultural resistance, and technological risks. These elements indicate that innovation occurs in a dynamic, uncertain environment. External pressures, such as evolving consumer demand, require rapid adaptation, while internal barriers, such as resistance to change, slow implementation. Technological risks further increase uncertainty, particularly when firms adopt new systems that require integration with existing infrastructure. The third category, product innovation process, reflects the structured approach to developing and commercializing new products. Codes such as research and development, market testing, and product differentiation indicate a systematic innovation cycle. The firm relies on R&D to generate ideas, uses market testing to validate product feasibility, and applies differentiation strategies to position products competitively. This category demonstrates that innovation is not ad hoc but follows a disciplined process designed to reduce risk and enhance market acceptance.

The fourth category, digital transformation, includes production automation, big data, artificial intelligence, and the Internet of Things. This category highlights the technological backbone of innovation. The integration of digital tools enhances efficiency, improves data accuracy, and supports real-time decision making. It also enables scalability and flexibility in production and distribution processes. This finding indicates that digital transformation acts as an enabling mechanism that strengthens both innovation capability and operational performance. The fifth category, culture and human resources, emphasizes the role of organizational readiness in supporting innovation. Codes such as employee training and mindset change reflect the need to develop human capital and align organizational culture with innovation objectives. Innovation requires not only technological investment but also behavioral adaptation. Training programs and cultural transformation initiatives are essential to reduce resistance and improve employee engagement in innovation activities.

The sixth category, collaboration, highlights the importance of external partnerships. The inclusion of startups, universities, and technology partners indicates that the firm adopts an open innovation approach. Collaboration expands access to knowledge, accelerates technological adoption, and reduces development costs. It also enhances the firm's ability to respond to complex innovation challenges that cannot be addressed solely through internal resources. The final category, performance and impact, links innovation activities to measurable outcomes. Codes such as increased sales and operational efficiency demonstrate that innovation generates tangible benefits. This category confirms that sustainable innovation contributes to both financial performance and process optimization. It also provides evidence that innovation investments translate into improved competitiveness. The axial coding results reveal an integrated framework in which strategy, technology, organizational factors, and external relationships interact to shape innovation outcomes. The categories are interdependent. Innovation strategy defines direction, digital transformation provides capability, organizational culture enables implementation, collaboration expands resources, and performance outcomes validate effectiveness. This structured categorization offers a comprehensive understanding of how sustainable innovation operates as a multidimensional system within the firm.

Table 3. Results of Main Thematic Analysis (Query Coding Matrix)

Theme	Top Management	Middle Management
Innovation strategy	Very dominant	Moderate
Digital transformation	Dominant	Dominant
Cultural challenges	Dominant	Very dominant
Operational implementation	Low	Very dominant
External collaboration	Dominant	Moderate
Evaluation of innovation performance	Dominant	Dominant

Table 3 presents a comparative analysis of how key innovation themes are emphasized across organizational levels. The matrix distinguishes between top management and middle management perspectives, which allows identification of differences in strategic focus and operational responsibility. The distribution of dominance levels reflects the role each group plays in shaping and executing sustainable innovation. The first theme, innovation strategy, is very dominant at the top management level and moderate at the middle management level. This indicates that strategic direction, vision formulation, and long-term positioning are primarily driven by senior leadership. Top management defines innovation priorities and allocates resources. In contrast, middle management engages with strategy at a more practical level, focusing on implementation rather than formulation.

The second theme, digital transformation, is dominant across both management levels. This suggests strong organizational alignment regarding the importance of digital technologies. Both groups recognize the role of automation, data analytics, and digital systems in enhancing efficiency and competitiveness. The equal emphasis indicates that digital transformation is embedded across strategic and operational domains. The third theme, cultural challenges, is dominant at the top management level and very dominant at the middle management level. This pattern reflects the direct exposure of middle managers to employee resistance and operational barriers. While top management acknowledges cultural constraints, middle management experiences these challenges more intensively during implementation. This finding highlights the importance of change management practices and internal communication.

The fourth theme, operational implementation, shows low emphasis at the top management level and very high dominance at the middle management level. This contrast reflects a clear division of roles. Top management focuses on strategic planning, while middle management executes innovation initiatives. Middle managers translate abstract strategies into concrete actions, manage workflows, and oversee day-to-day processes. The fifth theme, external collaboration, is dominant at the top management level and moderate at the middle management level. This indicates that partnership decisions, including collaboration with startups, universities, and technology providers, are primarily initiated at the strategic level. Middle management participates in operational coordination but has limited influence on partnership formation.

The final theme, evaluation of innovation performance, is dominant for both groups. This suggests that performance measurement is a shared organizational priority. Both top and middle management monitor outcomes such as sales growth, efficiency improvements, and market response. This alignment ensures that innovation efforts are continuously assessed and adjusted based on measurable results. Thus, the matrix reveals a structured distribution of responsibilities within the organization. Top management concentrates on strategic direction, external positioning, and performance evaluation. Middle management focuses on execution, operational challenges, and process management. Digital transformation and performance evaluation serve as bridging themes that connect the two levels. This alignment supports effective implementation of sustainable innovation while maintaining strategic coherence.

5. Discussion

This study examines how sustainable innovation and digital transformation jointly shape competitive advantage within a large FMCG firm. The findings reveal a coherent pattern in which innovation is embedded across strategy, operations, and organizational processes. The discussion interprets these results in light of existing literature and clarifies their theoretical and practical implications. First, the finding that innovation functions as a central strategic driver aligns with prior evidence that sustainable innovation enhances firm competitiveness through efficiency gains and market differentiation. Empirical studies confirm that green innovation strategies strengthen both innovative performance and competitive advantage by integrating environmental considerations into core business activities (Hayat & Qingyu, 2024). The observed emphasis on innovation as a survival mechanism also supports broader findings that sustainability-oriented practices contribute to long-term firm performance, although their effectiveness depends on strategic alignment and

contextual conditions (Zahra et al., 2025; Osorio, 2024). In this study, the firm demonstrates clear integration of sustainability into strategic decision-making, thereby reinforcing its competitive positioning.

Second, the strong influence of changing consumer preferences confirms the relevance of market-driven innovation. The results show that demand for healthier and environmentally friendly products directly shapes product development strategies. This aligns with systematic evidence that stakeholder engagement and environmental considerations are critical drivers of sustainable innovation (Saxena et al., 2024). The firm's responsiveness to consumer trends reflects an adaptive capability that allows continuous alignment with market expectations. This capability is particularly important in competitive industries where consumer preferences evolve rapidly. Third, digital transformation emerges as a key enabler of innovation. The adoption of automation, artificial intelligence, and data analytics enhances operational efficiency and decision-making accuracy. This finding is consistent with empirical research showing that digitalization strengthens the relationship between innovation and firm performance (Li et al., 2024). Furthermore, integrating digital tools supports process optimization and scalability, which are essential for maintaining competitiveness in large-scale manufacturing environments. Prior studies also highlight that big data and advanced analytics amplify the impact of green innovation by overcoming technological constraints (Dong et al., 2024). The present findings confirm that digital transformation and sustainable innovation operate as complementary capabilities rather than independent processes.

Fourth, the study identifies organizational culture as a critical barrier to innovation. Resistance to change is more pronounced at the operational level, where employees directly engage with new technologies and processes. This finding supports existing research highlighting the roles of institutional and behavioral factors in shaping innovation outcomes (Xiao et al., 2023). Cultural resistance limits the effectiveness of technological investments unless supported by training and change management initiatives. The results indicate that middle management plays a central role in addressing these challenges, which emphasizes the importance of internal coordination and leadership at multiple levels. Fifth, external collaboration is shown to accelerate innovation processes. Partnerships with universities, startups, and technology providers expand access to knowledge and reduce development time. This finding aligns with the open innovation perspective and is supported by evidence that collaboration enhances innovation capacity and performance (Prayitno, 2023). External networks also enable firms to respond to complex technological challenges and regulatory requirements. The role of collaboration is particularly relevant in environments where rapid technological change requires continuous learning and adaptation.

Sixth, the measurable impact of innovation on performance provides strong empirical support for the link between innovation and competitiveness. The observed increase in sales and operational efficiency reflects the tangible benefits of integrating sustainability and digitalization. This finding is consistent with studies demonstrating that sustainability strategies and innovation investments lead to superior growth and resilience (Garzia et al., 2025). In addition, ESG-oriented innovation strategies have been shown to improve productivity and long-term firm outcomes, further reinforcing the importance of sustainability in competitive strategy (Cabaleiro-Cerviño & Mendi, 2024; Niu & Wang, 2024). From a theoretical perspective, the findings support and extend the Resource-Based View by demonstrating that sustainable innovation and digital capabilities function as strategic resources. These capabilities are valuable, difficult to imitate, and embedded within organizational processes. Prior research confirms that green innovation and technological competencies contribute to sustained competitive advantage within this framework (Zhou, 2025; Zhu et al., 2023). The results also align with dynamic capabilities theory, as the firm demonstrates the ability to integrate, reconfigure, and adapt resources in response to environmental and market changes.

However, the study also reveals important complexities. The interaction between strategic direction and operational implementation is not uniform across organizational levels. Top management focuses on vision and external positioning, while middle management handles execution and operational challenges. This division highlights the need for stronger alignment mechanisms to ensure that strategic objectives are effectively translated into practice. The findings suggest that successful innovation requires not only resource availability but also coordination across organizational layers. In addition, the results highlight the role of institutional and regulatory contexts in shaping innovation strategies. While the study focuses on a single firm, existing literature indicates that environmental regulations and institutional pressures can stimulate innovation and improve competitiveness (Fabrizi et al., 2024). The integration of these external factors into firm-level strategies remains an area that requires further investigation.

6. Conclusions

This study demonstrates that sustainable innovation and digital transformation function as complementary drivers of competitive advantage within a large emerging market firm. The findings show that innovation is embedded across strategic planning, operational processes, and organizational systems. The firm integrates sustainability into product development, improves efficiency through digital technologies, and aligns innovation activities with evolving consumer preferences. This integrated approach

enables the firm to strengthen its market position and sustain long-term performance. The analysis confirms that sustainable innovation is not limited to environmental compliance. It operates as a strategic capability that enhances value creation through product differentiation, cost efficiency, and responsiveness to market dynamics. At the same time, digital transformation provides the technological infrastructure that supports innovation processes. The adoption of automation, data analytics, and intelligent systems improves decision quality and operational flexibility. The interaction between these two dimensions creates a reinforcing mechanism that strengthens competitiveness.

However, the study also identifies key internal challenges. Organizational culture and resistance to change remain significant barriers to the effective implementation of innovation. These challenges are more pronounced at the operational level, where employees must adapt to new technologies and processes. The findings highlight the importance of change management, employee training, and leadership alignment in ensuring successful innovation outcomes. In addition, the division of roles between top and middle management indicates that coordination across organizational levels is essential for translating strategic intent into operational execution. The study contributes to the literature by providing an integrated perspective that connects sustainable innovation, digital transformation, and competitive advantage within a single analytical framework. It also offers empirical insights from an emerging market context, which remains underrepresented in existing research. The results suggest that firms operating in similar environments can enhance competitiveness by combining sustainability-oriented strategies with digital capabilities, supported by strong organizational alignment and external collaboration.

Despite these contributions, the study has limitations. The focus on a single case restricts generalizability, and the qualitative approach limits the ability to establish causal relationships. Future research should adopt longitudinal, multi-industry designs to examine how innovation capabilities evolve over time and across contexts. Quantitative methods may also be used to test the relationships identified in this study and to explore the moderating effects of institutional and organizational factors. In conclusion, sustained competitiveness in contemporary markets requires a holistic innovation approach. Firms must integrate sustainability principles, digital technologies, and organizational capabilities into a coherent strategy. Those that achieve this integration are better positioned to adapt to environmental changes, meet stakeholder expectations, and maintain long-term competitive advantage.

Author Contributions: Conceptualization, A.A. and A.H.; methodology, A.A.; software, A.A.; validation, A.H.; formal analysis, A.A.; investigation, A.A.; resources, A.A.; data curation, A.H.; writing, original draft preparation, A.A.; writing, review and editing, A.A. and A.H.; visualization, A.A.; supervision, A.H.; project administration, A.A.; funding acquisition, A.H. All authors have read and agreed to the published version of the manuscript.

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Funding: This research received no external funding.

Institutional Review Board Statement: Ethical review and approval were not required for this study in accordance with institutional guidelines, as the research involved non-sensitive organizational data and voluntary participation.

Informed Consent Statement: Informed consent was obtained from all subjects involved in the study.

Data Availability Statement: The data are not publicly available due to confidentiality restrictions, but may be provided upon reasonable request by the corresponding author.

Acknowledgments: The authors express their appreciation to all participants from PT. Mayora Indah Tbk. for their valuable insights and cooperation. Gratitude is also extended to colleagues and reviewers for their constructive feedback, which improved the quality of this study.

Conflicts of Interest: The authors declare no conflict of interest.

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