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BEYOND THE FAMILY TIES: COMPETITIVE INTELLIGENCE AS A CATALYST FOR INNOVATION IN FAMILY-OWNED BUSINESSES

Adebakin, Moruf Akanni[1]Adudu, Chiangi Adudu[2] Lawal, Abdulazeez.Abioye[3]
[1]Department of Business Administration and Management, Yaba College of Technology, Lagos, Nigeria.
[2]Department of Business Administration & Management, Yaba College of Technology, Lagos, Nigeria.
[3]Department of Business Administration, Lagos State University of Science of Technology Lagos

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ABSTRACT

This study investigates the effect of Competitive Intelligence (CI) in supporting sustainable innovation (SI) in Nigerian family-owned businesses (FOB), with a specific emphasis on the moderating effects of Generational Ownership (GO), Business Agility (BA), and Strategic Planning (SP). Using a quantitative approach, data were collected from 237 respondents drawn from 25 Nigerian family-owned firms in diverse sectors and analyzed using regression analysis. The results suggest a positive correlation between CI and sustainable innovation, which confirms that CI substantially improves a company's ability to implement sustainable practices. The result also revealed that Generational Ownership moderates this relationship, as family businesses owned by the third or fourth generation exhibit greater dedication to sustainability through CI. The impact of CI on sustainable innovation was also found to be enhanced by Business Agility and Strategic Planning. This suggests that family businesses with well-structured and dynamic planning processes are better positioned to leverage CI for long-term sustainability. The findings of this study have practical implications for Nigerian family business leaders, policymakers, and practitioners by emphasizing the significance of CI and adaptive practices in the context of swiftly changing markets concerning resilience. Providing a pathway for family-owned businesses in emergent economies to contribute to sustainable development through informed, innovation-driven strategies, this study is in alignment with Sustainable Development Goal (SDG) 9 on industry, innovation, and infrastructure.

KEYWORDS: *Sustainable Innovation, Generational Ownership, Business Agility, Strategic Planning.*

1.0 INTRODUCTION

1.1. General Description of Study

The contemporary global environment is highly dynamic and competitive. More specifically, the dynamism of today's environment requires business organizations to be increasingly dependent on knowledge of the changing environment and the adopting appropriate strategies to cope with environmental challenges. Competitive Intelligence (CI) is one of the strategic tools adopted by organizations to adapt to environmental changes. (de las Heras-Rosas & Herrera ,2021). CI as a business activity is generally associated with strategic and knowledge management and has transformed into a relatively new field of study.

CI is about gathering, analyzing, and using information on competitors, markets, corporate and business strategies, and industry trends. It is an important component of strategic management used for monitoring the competitive environment to achieve competitive advantage. The goal is to make smarter decisions, stay ahead, and handle challenges better (Wright, 2011). CI reduces the risk inherent in the choice of competitive strategies which is important in today's competitive conditions. (de las Heras-Rosas & Herrera ,2021).

In developed and developing countries small and medium enterprises (SMEs) mostly family-owned businesses have remained the major drivers of economic growth and development, wealth creation, and employment generation. (Lawal et al., 2017). The family business is the oldest and most common model of business; it operates all over the world and can constitute a major percentage of all forms of enterprises, from small to large multinational corporations. (Baltazar et al., 2023). In fast-moving economies like Nigeria, where markets can shift overnight, CI is more than useful—it is essential. Businesses need to stay flexible and quick to adapt, or they risk falling behind (Calof and Wright, 2008).

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CI allows an organization a better understanding of the business and industry environment, as well as continuous learning. In addition, for family-owned businesses, CI can be transformative. These businesses often lean toward tradition and long-term planning. While this has its strengths, it can also hold them back in a rapidly changing environment. CI gives them the tools to innovate and evolve. Innovation—the process of creating and applying new ideas—is a survival skill in today's business world. It helps companies keep up with market changes, improve efficiency, and build lasting value. For family businesses, innovation isn't just about survival. It is about passing on something better to the next generation. Done right, it secures their legacy (Chrisman, Chua, & Sharma, 2005).

Sustainable innovation adds another layer to this. It is about growing responsibly—using methods that protect the environment and society. For family businesses, this often aligns with deeply held values, like taking care of their community and acting as stewards of their legacy (Craig & Dibrell, 2006). In Nigeria, where small and medium-sized enterprises (SMEs) are economic drivers, many family-owned businesses are exploring sustainable practices. This not only helps them stand out but also aligns with global standards like the UN's Sustainable Development Goals (SDGs), particularly SDG 9, which focuses on industry, innovation, and infrastructure.

Despite the growing interest in family businesses and recognition of CI and innovation as strategic tools for sustainability, there's still a gap in understanding how Nigerian family businesses can fully leverage CI to drive sustainable innovation. Family enterprises face unique hurdles—limited resources, deeply rooted traditions, and the complexities of generational ownership (Sirmon & Hitt, 2003). CI is especially valuable here because it helps these businesses refine strategies, improve competitiveness, and aim for long-term sustainability. But there's a lot we still knowledge gap about how CI influences innovation and sustainability, particularly in Nigeria's challenging regulatory and economic environment (Owualah, 2014).

This study explores three key questions. First, how does CI influence sustainable innovation in family businesses? Second, does the type of ownership—whether first-generation founders or multi-generational dynasties—and business longevity affect how well CI works? Finally, how do factors like organizational agility and strategic planning shape the connection between CI and innovation?

By focusing on family-owned businesses in Nigeria, this research fills an important gap. It shows how CI can be a strategic tool for fostering innovation and sustainability in emerging economies. Family businesses play a huge role in Nigeria's economy. They drive job creation, industrial growth, and overall development (Adeola & Ezenwafor, 2016; Owualah, 2014). Helping them innovate responsibly doesn't just benefit the businesses themselves—it aligns with Nigeria's broader development goals and the global push for sustainable practices.

The findings could also be a game-changer for business leaders, policymakers, and CI professionals. For family business leaders, understanding how CI drives innovation can help them stay competitive, meet sustainability standards, and keep the business thriving for future generations. Policymakers might find new reasons to support family enterprises through incentives or training in CI techniques. This is crucial in Nigeria, where many family businesses struggle to access market insights or advanced tools for competitive intelligence (Adegbite et al., 2012).

2.0. LITERATURE REVIEW

2.1. Theoretical Framework

This study is anchored on Innovation Theory, Resource-Based View (RBV), and Dynamic Capabilities Theory, which collectively establish a theoretical framework for comprehending the relationship between innovation, sustainability, competitive intelligence, and organizational agility. These three key ideas are applied to explore how competitive intelligence (CI), innovation and sustainability come together in family-owned businesses.

2.11. Resource-Based View (RBV)

The resource-based view conceptually explains how family businesses gain an edge by using unique internal resources—like CI—that are valuable and hard to copy. The theory was propounded by Wernerfelt (1984) who stated that an enterprise is a pool of both tangible and intangible resources. Subsequently, RBV was refined by Barney (1991) and other scholars. The RBV theory of the firm has found considerable support in the business literature (Kshetri, 2008). The main thesis of the RBV is that sustainable competitive advantage is contingent on the resources and capabilities of an organization. Barney (1991) identified four attributes of resources that can give rise to competitive advantage value, rarity, imperfect imitability, and lack of substitutability. Valuable resources enhance the ability of an organization to exploit opportunities and manage threats in a dynamic environment. (Barney, 1991). In addition, it enables organizations to develop and/or implement strategies for efficiency and effectiveness (Capron and Hulland, 1999).

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Organizational success largely is contingent on resources at its disposal. Such resources must be unique, rare, inimitable, and irreplaceable. Intangible resources such as innovation can generate and preserve competitive advantages, and thus drive superior firm performance (Barney, 1991). For family businesses in developing economies like Nigeria, CI is proposed to be more than a tool; it's a powerful intangible asset that drives growth and resilience (Adegbite et al., 2012). Take the Dangote Group, for example. It relies on CI to track market shifts and streamline operations, particularly in cement and food production. These strategies not only build efficiency but also align with global sustainability goals (Okeke & Eze, 2016). This shows how leveraging CI can help family enterprises innovate while staying competitive. In summary, the CI of family firms' resources is characterized by rarity, imperfect imitability, and lack of substitutability, which can be attributed to the organizational systems and cultures, among others.

2.12. Dynamic Capabilities Theory

Dynamic Capabilities refer to the ability to integrate, build, and reconfigure internal and external resources/competencies to manage dynamic business environments. Dynamic capability theory was proposed by Teece and Pisano (1994). It was an extension of Barney's (1991) resource-based view (RBV). Generally, valuable resources and dynamic capabilities are competencies that cannot be bought; they must be integrated and reintegrated into the organizational system in light of the dynamic business environment. Such capabilities are critical for sustainable development and competitive advantage. This theory looks at how businesses adapt to fast-changing environments by rethinking and reworking their resources (Teece, Pisano, & Shuen, 1997). Organizations have dynamic capabilities when available information is used to understand real situations and the contemporary dynamic global environment. For Nigerian family-owned businesses, this implies that CI needs to be adopted to stay flexible amid challenges like fluctuating markets and regulatory demands. A good example is the BUA Group, which operates in industries like cement and sugar. By tapping into market data and fostering innovation, the company demonstrates how adaptability and strategic planning can lead to sustained success in resource-intensive fields (Adesina & Adegbite, 2018).

2.13. Innovation Theory

Innovation is an idea or an object that is perceived to be new (Rogers Everett, 1995). Innovation theory articulates the factors leading to innovation and the innovation process. Management literature is inundated with theories on innovation processes and factors leading to technological change in organizations. Schumpeter (1934) emphasized that innovation is essential for survival in competitive markets, therefore business organizations must consistently innovate to remain competitive and adjust to changing market conditions. For Nigerian companies, where economic and environmental issues are ever-present, sustainable innovation is even more critical. Consider Innoson Vehicle Manufacturing (IVM), Nigeria's first local car manufacturer. IVM uses CI to understand market needs and competitor actions, helping them create affordable, eco-friendly vehicles tailored to African consumers (Eneh, 2017). This approach highlights how innovation and CI work hand in hand to tackle real-world challenges.

2.2. Empirical Review

2.21. Competitive Intelligence and Sustainable Innovation

CI involves gathering and analyzing information about competitors, market trends, and consumer behavior to support smarter decisions (Fleisher & Bensoussan, 2015). The results of recent research confirmed the significant effect of CI on sustainable competitive advantage.CI enables management to make effective decisions about organizational strategies and planning for sustainable competitive advantage (Zebarjad & Rezaei, 2023). In emerging markets like Nigeria, where businesses must navigate complex and unpredictable conditions, CI is indispensable (Calof & Wright, 2008). It helps companies reduce uncertainty and focus their efforts on sustainable innovation by offering valuable insights into customer preferences, competition, and regulatory changes (Mosey et al., 2007).

The word innovation is derived from a Latin word meaning "to create something new". Innovation is both renewing a process and a result (Peters & Pikkemaat, 2006). The most important feature of innovation is the conversion of innovations into economic value. Innovation devoid of significant monetary value is valueless. (Tutar et al.2024). The concept of innovation is relevant in both management and business functions. (Chiffoleau & Loconto, 2018). Innovation is premised on transforming technology and science into an economic value. It is a crucial factor in the contemporary turbulent environment and enhances an organization's competitive advantage. The innovative strategies are formulated to increase market share, reduce costs, and increase efficiency (Endres et al., 2022). Business organizations effectively adapt to the challenges of dynamic environmental conditions by formulating and implementing innovative strategies, methods, and products. Hence, family businesses must innovate to achieve competitive advantage and sustainable development

Family businesses are increasingly using CI to align with sustainability goals. The familiness in the family business is believed to be a collection of resources resulting in the deep and persistent bond among most family members and shared collective goals, fostering an

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ideal working environment for optimizing social capital conditions. (Acquaah, 2011). This invaluable social capital facilitates knowledge management and innovation (Alguezaui and Filieri, 2010). The Honeywell Group, which operates in Nigeria's food and energy sectors, uses CI to implement energy-efficient processes that address environmental challenges (Owualah, 2014). These practices show how CI supports responsible innovation by improving resource efficiency and meeting regulatory expectations.

Studies back up the connection between CI and innovation. Businesses with strong CI systems are better at spotting market opportunities and planning for the future (Wright, 2011). For Nigeria's family-owned enterprises—key players in the nation's economy—CI is vital. It helps them uncover new opportunities, navigate regulations, and build long-term sustainability (Adeola & Ezenwafor, 2016).

2.22. Sustainable Innovation in Family-Owned Businesses

The sustainable development and competitiveness of any nation requires inputs from both the innovation-driven family businesses, as well as family-driven innovative businesses. (Somboonvechakarn, et.al, 2023). Innovation contributes to financial growth by enhancing competitiveness to gain new target groups through innovative business models, and better adaptability and ability to flexibly adapt to the challenges of the environment.(Calabrò et al., 2018).Sustainable innovation is about creating products, processes, or ideas that improve business performance while reducing harm to the environment (Tidd & Bessant, 2020). Family-owned businesses have an edge here. Their focus on long-term goals, commitment to legacy, and strong ties to their communities make them well-suited to adopt sustainable practices (Chrisman, Chua, & Sharma, 2005). Research shows that many are already doing this, using innovation as a key driver (Craig & Dibrell, 2006; Skrbkova et al., 2023).

In Nigeria, family businesses like Globacom, a telecom company, are leading by example. They've invested in eco-friendly technologies to improve services while cutting their environmental footprint (Olagunju, 2019). This approach aligns with their long-term goals and demonstrates how sustainability can go hand in hand with innovation. Studies also suggest that family enterprises often excel at incorporating sustainability into their strategies because they prioritize legacy and intergenerational success over short-term profits (Dibrell et al., 2014).

The need for sustainable practices is particularly pressing in Nigeria, where environmental challenges are significant. Companies like the Dangote Group, which operate in resource-heavy industries, are uniquely positioned to lead change. By integrating competitive intelligence (CI) into their innovation processes, they can explore greener options and adopt responsible practices, becoming leaders in sustainable business (Adegbite & Nakpodia, 2011).

2.24. Business Agility and Strategic Planning: Key Moderators

The term "agile" was initially used by researchers from the University of Li High in 1991 as a flexible manufacturing system that has the capabilities required for the market's rapidly changing needs and that can promptly achieve customer satisfaction (Alhosseiny, 2023). Business agility refers to a company's ability to adapt quickly to market changes and challenges (Overby, Bharadwaj, & Sambamurthy, 2006). In Nigeria's fast-moving economy, this flexibility is crucial. Family-owned businesses that combine agility with sustainable innovation can stay ahead. Agile companies can act on new information faster, incorporating it into their plans and improving continuously (Senge, 2006). For instance, Interswitch Group, a Nigerian fintech company, regularly adapts its financial products to meet shifting customer needs and regulatory demands, guided by insights from CI (Eboh, 2018).

In the contemporary globalized competitive environment, strategic planning plays a big role in achieving competitive advantage and sustainable development. It is the process of defining the organizational vision and mission, analyzing the environment, setting the goals, developing strategic options, reviewing and selecting and selecting tools to monitor progress (Alhosseiny, 2023). It helps align innovation efforts with long-term goals, ensuring that businesses stay focused on sustainability while continuously improving (Mintzberg, 1994). Research suggests that family-owned companies with solid planning processes are better at using CI to identify and implement sustainable innovations (Dibrell et al., 2014). Take UBA Group, a Nigerian bank with a rich history. By using CI in their strategic planning, they've developed financial products that not only meet market needs but also align with sustainability goals (Adedokun & Olayemi, 2020).

Family businesses globally are known for their long-term outlook, but little is known about how generational ownership affects the way Nigerian family enterprises use CI for sustainable innovation. Do later generations do better at leveraging CI? What role do business agility and strategic planning play in making this process more effective? These are the questions this study seeks to answer. Based on the foregoing review, the following hypotheses are proposed:

H1: Competitive intelligence positively impacts sustainable innovation in family-owned businesses.

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H2: Generational ownership moderates the relationship between CI and sustainable innovation, such that CI's effect is stronger in later generations.
H3: Business agility and strategic planning positively moderate the relationship between CI and sustainable innovation.

3.0. METHODOLOGY

3.1. Research Design

This research adopted quantitative design research to explore the effect of CI on sustainable innovation in family businesses. For this purpose, a survey was conducted with family business organizations. The survey design was preferred in the research given the explanatory nature of the research. In addition, the design was chosen because the emphasis of the research is on studying a situation or problem to explain the relationships among variables. (Saunders, Lewis, & Thornhill, 2016).

3.2. Participants and Sampling

The research drew insights from 25 family-owned businesses across Nigeria, covering sectors like manufacturing, agriculture, telecommunications, and financial services. . The research was conducted with people with deep knowledge of the research topic. This study was conducted with senior family business managers to achieve the primary objective of the research.

A non-probability convenience sampling method was used, yielding 237 valid responses. Participants included business owners, family members working in the business, and senior management who were happy to share their insights. While this method limits generalizability, it made sense given the explanatory nature of the study and the close-knit, network-driven operations typical of Nigerian family businesses (Creswell, 2014; Saunders, Lewis, & Thornhill, 2016).

3.3. Measures

Data were collected through a standardized questionnaire with measures validated in previous studies. Responses were scored on a 5-point Likert scale (1 = strongly disagree, 5 = strongly agree). The constructs and their specifics include:

Competitive Intelligence (CI): This four-item scale assessed how well organizations gather, analyze, and apply market intelligence in their strategies. Cronbach's Alpha of 0.813 (Fleisher & Bensoussan, 2015).

Sustainable Innovation was evaluated with a four-item measure capturing environmentally friendly practices, social responsibility, and economic sustainability—all tied to SDG 9. Cronbach's Alpha was 0.867 (United Nations, 2015).

Business Agility was measured by three-item scale on how nimble organizations are in adapting to shifting markets and environmental changes. Cronbach's Alpha 0.721. (Teece, Pisano, & Shuen, 1997).

Strategic Planning & Risk Management. A four-item measure assessed how well CI is integrated into planning and risk management. Cronbach's Alpha of 0.784. (Mintzberg, 1994).
Control variables were generational ownership (first, second, or third generation and beyond) and years of operation (under 5 years, 5–10 years, and over 20 years).

A pilot test was conducted with 20 participants. Feedback led to minor tweaks that made the questionnaire clearer and more effective.

4.0. DATA ANALYSIS TECHNIQUES

4.1. Analytical Tools

To guarantee accurate testing of the study's hypotheses, SPSS version 26 was used to analyze the data (Field, 2013). Several statistical methods were used. The sample attributes such as sector distribution, generational ownership, and years of operation were compiled using descriptive statistics (Saunders et al., 2016). Cronbach's Alpha was used for reliability testing, and it showed satisfactory internal consistency across scales for business agility, sustainable innovation, competitive intelligence (CI), and strategic planning ($\alpha > 0.70$) (Nunnally, 1978). The construct structure was validated using an exploratory factor analysis (EFA), where factors with loadings above 0.5 and eigenvalues greater than 1 were kept (Tabachnick & Fidell, 2013). Using CI as the independent variable and sustainable innovation as the dependent variable, Simple Linear Regression was used to test the hypothesis (Field, 2013). For H2, a moderated regression analysis was employed, which included an interaction term to evaluate the moderating effect of generational ownership on the connection between CI and sustainable innovation (Aiken & West, 1991). Finally, using business agility and strategic planning as

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independent factors and sustainable innovation as the dependent variable, multiple regression analysis was used to test H3, analyzing the impact of these variables on the link between CI and sustainable innovation (Creswell, 2014).
Finally, ethical considerations were a top priority. All participants gave informed consent, and their anonymity was guaranteed. No personal data was collected—just their professional insights.

4.2. Results

4.21. Descriptive Statistics

The descriptive statistics indicated that the sample consisted mostly of larger, well-established family-owned enterprises, with 68.4% employing more than 200 people (mean = 3.52, SD = 0.795), demonstrating a preference for medium-to-large corporations. The sector participation is diversified, with the majority coming from automobiles (37.1%) and manufacturing (33.3%), followed by services (18.1%), retail (8.4%), and agriculture (3.0%). According to generational data, 53.6% of enterprises are founder-led, with 28.3% in the second generation and 18.1% in the third generation or above (Mean = 1.65, SD = 0.771), indicating that the founding generation continues to have a significant influence on organizations. The sample is likewise skewed towards older organizations, with 76.4% having been in business for more than 20 years, showing a high concentration of established businesses (Mean = 3.65, SD = 0.707). This demographic analysis focuses on a sample of mature, founder-led enterprises, especially in industrial industries, which provides a solid foundation for investigating competitive intelligence and sustainability practices across different generational stages.

4.22. Hypothesis Testing

To test H_1, a simple linear regression was conducted with Sustainable Innovation as the dependent variable and Competitive Intelligence (CI) as the independent variable.

Table 1: Model Summary for H_1

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.630[a]	.397	.395	1.580

a. Predictors: (Constant), Measures of Competitive Intelligence

The R^2 value of 0.397 indicates that 39.7% of the variance in sustainable innovation is explained by CI, showing a strong positive relationship.

Table 2: Coefficients for H_1

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	4.834	.710		6.809	.000
	Measures of Competitive Intelligence	2.526	.203	.630	12.448	.000

a. Dependent Variable: Measures of Innovation

The Beta value of 0.630 ($p < 0.000$) supports H_1, confirming that Competitive Intelligence positively and significantly impacts Sustainable Innovation in family-owned businesses explaining 40% of its variance.
A moderated regression analysis was conducted to test H_2 using Generational Ownership as a moderator. By multiplying CI and generational ownership, an interaction term (CI GenOwnership Interaction) was established.

Table 3: Model Summary for H_2

R	R Square	Adjusted R Square	Std. Error of the Estimate
0.634	0.402	0.395	1.580

The R^2 value of 0.402 suggests that when the interaction term is included, 40.2% of the variance in Sustainable Innovation is explained by CI, Generational Ownership, and their interaction.

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Table 4: Coefficients for H_2

Model	Unstandardized Coefficients (B)	Std. Error	Standardized Coefficients (Beta)	T	Sig.
Constant	1.982	0.405		4.895	0.000
CI	0.652	0.075	0.542	8.693	0.000
Generational Ownership	0.267	0.103	0.211	2.591	0.010
CI_GenOwnership_Interaction	0.139	0.054	0.182	2.574	0.011

The interaction term (CI_GenOwnership_Interaction) is statistically significant ($\beta = 0.182$, $p = 0.011$), thereby providing support for H_2. This finding suggests that Generational Ownership influences the relationship between CI and Sustainable Innovation, with a more pronounced effect of CI on innovation observed in later-generation family-owned businesses.

A multiple moderated regression was conducted to investigate the extent to which Business Agility and Strategic Planning enhanced the relationship between CI and Sustainable Innovation. Interaction terms were generated by multiplying CI with Business Agility and Strategic Planning.

Table 5: Model Summary for H_3

R	R Square	Adjusted R Square	Std. Error of the Estimate
0.742	0.551	0.542	1.375

The R^2 value of 0.551 shows that 55.1% of the variance in Sustainable Innovation is explained by CI, Business Agility, Strategic Planning, and their interactions, indicating a strong explanatory power when these moderators are included.

Table 6: Coefficients for H_3

Model	Unstandardized Coefficients (B)	Std. Error	Standardized Coefficients (Beta	t	Sig.
Constant	1.284	0.345		3.721	0.000
CI	0.529	0.067	0.423	7.896	0.000
Business Agility	0.248	0.089	0.192	2.787	0.006
Strategic Planning	0.305	0.092	0.239	3.315	0.001
CI_Agility_Interaction	0.187	0.061	0.231	3.066	0.002
CI_StrategicPlanning_Interaction	0.213	0.068	0.249	3.132	0.002

The substantial positive coefficients for CI_Agility_Interaction ($\beta = 0.231$, $p = 0.002$) and CI_StrategicPlanning_Interaction ($\beta = 0.249$, $p = 0.002$) provide support for H3, indicating that Business Agility and Strategic Planning serve as positive moderators in the relationship between CI and Sustainable Innovation. This suggests that the influence of CI on sustainable innovation is more pronounced in agile businesses that participate in strategic planning.

The findings validate all three hypotheses, emphasizing the essential contributions of CI, generational ownership, business agility, and strategic planning to the advancement of sustainable innovation in family-owned enterprises. The findings underscore the importance of CI and organizational adaptability in facilitating sustainability goals for family-owned businesses.

4.3. Discussion

This study highlights how Competitive Intelligence (CI) plays a critical role in driving Sustainable Innovation within family-owned businesses, particularly when paired with Generational Ownership, Business Agility, and Strategic Planning as moderating factors.

The results confirm that CI positively impacts sustainable innovation in family enterprises. No surprises there—CI has long been recognized for its ability to help organizations identify trends, monitor competitors, and navigate shifting markets. But here's the twist: by consistently gathering and analyzing external data, family businesses can uncover sustainable practices that align with their long-term goals and societal responsibilities (Calof & Wright, 2008).

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In Nigeria, where environmental and social challenges are hard to ignore, this translates into actionable insights. In Dangote Group and Innoson Vehicle Manufacturing CI helps these firms to adopt eco-friendly practices, minimize resource waste, and design products that meet market demands without compromising sustainability (Okeke & Eze, 2016). It's not just about staying competitive—it's about staying responsible.

The findings on generational ownership is even more interesting. The study found that CI's influence on sustainable innovation is stronger in later generations. Why? Successive generations often come to the table with a broader awareness of global sustainability issues, which tends to shape their decision-making priorities (Chrisman, Chua, & Sharma, 2005).

Later-generation leaders are also more open to innovation and change, seeing CI as a tool for balancing tradition with modern expectations. They're not just thinking about keeping the lights on; they're thinking about building a legacy that aligns with evolving market demands and sustainability standards (Craig & Dibrell, 2006). In a way, this reflects a larger trend among family businesses worldwide, where the next-gen leaders are leaving their mark by prioritizing environmental impact alongside profitability (Craig et al., 2014). The findings of this study also demonstrate CI's effectiveness in fostering sustainable innovation through a major boost from both business agility and strategic planning.

Agility allows family businesses to react quickly to new market insights and weave sustainability initiatives into their innovation strategies. It's especially handy in fast-changing environments like Nigeria, where firms need to keep up with new regulations and shifting customer expectations (Overby, Bharadwaj, & Sambamurthy, 2006). Meanwhile, strategic planning provides the structure. It ensures that CI isn't just a buzzword but an integrated part of long-term innovation efforts. With a solid plan in place, family-owned businesses can align their goals for sustainability with profitability and competitive advantage (Mintzberg, 1994).

Nigerian family businesses like Honeywell Group and Globacom are already putting these ideas into practice. By incorporating CI into their strategic planning, they've been able to ensure that their long-term objectives align with sustainable practices—think energy-efficient production and eco-conscious technologies (Adeola & Ezenwafor, 2016; Olagunju, 2019).

5.0. CONCLUSION AND RECOMMENDATIONS

5.1. Conclusion

This study underscores the strategic value of CI for Nigerian family-owned businesses. By embracing strategic planning, cultivating agility, and investing in CI, these businesses can drive sustainable innovation while staying competitive. Beyond securing their future, these efforts align with Nigeria's broader goals for environmental and economic sustainability, ensuring they contribute to a legacy that benefits future generations.

5.2. Recommendations

Several recommendations emerge from the findings for Nigerian family-owned businesses aiming to utilize CI for sustainable innovation.

i. Family businesses ought to prioritize investments in competitive intelligence systems and practices to enhance their comprehension of market trends, customer requirements, and competitor activities. Enhancing CI capabilities enables family businesses to more effectively identify opportunities for sustainable innovation, thereby maintaining competitiveness in a challenging market.
ii. Business leaders should cultivate an agile organizational culture that facilitates rapid adaptation to market changes. Simultaneously, structured strategic planning processes must be established to guarantee the integration of CI insights into long-term innovation objectives. The integration of agility and structured planning enhances CI's effectiveness, enabling family firms to align innovation with sustainability objectives efficiently.
iii. Family-owned manufacturing firms in Nigeria can utilize an AI-driven CI tool to monitor industry trends and competitor activities in real time. The AI algorithms can analyze these insights, identifying specific areas for business innovation, such as the introduction of eco-friendly materials or the adoption of new operational technologies, to achieve a competitive advantage.

5.3 Contributions to knowledge

This research brings fresh perspectives to the study of Competitive Intelligence (CI), Innovation, and Family Business Management. The finding that CI positively influences sustainable innovation aligns with the Resource-Based View (RBV), which suggests that companies gain a competitive edge by leveraging unique assets (Barney, 1991). In the context of family-owned businesses, CI becomes

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one of those critical resources—it empowers leaders to make informed decisions that blend environmental and social factors, ultimately strengthening their sustainable competitive advantage (Fleisher & Bensoussan, 2015).

One standout contribution is the exploration of Generational Ownership as a moderating factor in the CI-innovation dynamic. This adds a fresh layer to Innovation Theory by showing how generational shifts in family firms influence sustainability outcomes. Younger family members, who often have a more progressive outlook, tend to prioritize sustainability, bringing new energy and ideas into the mix (Chrisman et al., 2005; Craig et al., 2014).

The study also ties into Dynamic Capabilities Theory by illustrating how agility and strategic planning amplify CI's impact on sustainable innovation. Agility enables businesses to quickly adapt CI insights into actionable innovation strategies, while strategic planning keeps these innovations aligned with long-term goals (Teece, Pisano, & Shuen, 1997). In fast-moving markets like Nigeria, where businesses face constant economic and environmental shifts, this adaptability is more than an advantage—it's a necessity.

5.4. Practical Takeaways for Leaders and Policymakers

For family business leaders, the message is clear: invest in CI if you want to drive sustainable innovation. CI isn't just about keeping an eye on competitors; it's a tool for tackling local resource challenges, navigating environmental regulations, and staying relevant in a rapidly changing market. But it's not enough to just gather insights—leaders also need to emphasize agility and strategic planning. Agility ensures they can act on CI data quickly, while strategic planning ensures that those actions align with the company's bigger picture.

Policymakers also have a role to play here. By offering resources, incentives, and training programs focused on CI and sustainable innovation, they can help family businesses thrive while addressing larger issues like environmental sustainability. This support could also fast-track Nigeria's progress toward Sustainable Development Goal (SDG) 9, which prioritizes innovation, infrastructure, and industry development (United Nations, 2015).

This research makes a direct contribution to SDG 9 by showing how CI can drive sustainable and resilient industry practices. The combination of CI, strategic planning, and agility is especially powerful for family-owned businesses looking to innovate responsibly. What's particularly exciting is the growing influence of younger family members—leaders who are weaving sustainability into their strategies in ways that align with global development goals (Craig & Dibrell, 2006).

For Nigerian family enterprises, this study offers a clear roadmap: embrace CI, stay agile, and think strategically. These steps can help them achieve their sustainability goals while staying competitive in today's complex business landscape.

Finally, this research fills a much-needed gap in the literature. By focusing on family-owned businesses in Nigeria—key drivers of economic development—it highlights the untapped potential of CI in emerging economies. These insights are more than academic; they're a call to action for business leaders and policymakers alike to leverage CI for a sustainable future.

5.5. Limitations and Future Research

While this research provides valuable insights, it's worth acknowledging a few limitations. First, the cross-sectional design makes it challenging to establish a clear cause-and-effect relationship between CI and sustainable innovation. A longitudinal study could paint a clearer picture of how CI practices and innovation evolve, offering deeper insights into these dynamics.

Another consideration is the potential for response bias, given that the data were self-reported. Combining self-reports with objective measures or observational data in future studies could improve accuracy and reduce bias.

The research also focused on a specific set of family-owned businesses, which may not fully capture the diversity of sectors and regions. Expanding future studies to include a broader range of industries and locations could provide a more nuanced understanding of how CI functions in various family business contexts.

Lastly, there's an exciting opportunity to integrate AI-powered tools into future research. These tools could enhance the collection, analysis, and interpretation of large data sets, making the study even more relevant in today's fast-paced, data-driven world. Exploring how AI can transform traditional CI methodologies could open up new possibilities for both research and practice

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