INTEGRATING GREEN ENTREPRENEURIAL ORIENTATION AND OPPORTUNITY RECOGNITION FOR SUSTAINABLE COMPETITIVE ADVANTAGE: A CONCEPTUAL FRAMEWORK FROM NIGERIA'S COCOA SMES

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Abstract

In this theoretical paper, the creation and maintenance of competitive advantage by means of Green Entrepreneurial Orientation (GEO) through Opportunity Recognition (OR) in the cocoa value chain of the small and medium enterprises (SMEs) in Nigeria are developed in a process-based explanation. Based on the recent studies of strategy and entrepreneurship, GEO is viewed as a company level strategic stance, which incorporates the environmental commitment in the process of scanning, experimentation, and resource allocation. GEO, on its part, is not necessarily performance-enhancing; instead, its value is generated as the managers formally identify, evaluate, and introduce opportunities that promote sustainability like eco-innovations in processing, waste valorization, digital traceability, compliance capabilities, and repositioning of products to the green market. The paper therefore provides a mediator-only model where OR will be the intermediate between GEO and Sustainable Competitive Advantage (SCA). Four propositions are stated:(P1) GEO has a positive effect on opportunity recognition in the cocoa value chain; (P2) opportunity recognition has a positive effect on SCA; (P3) a confounding direct GEO-SCA relationship might exist when internal green routines are generating cost/reputation benefits of their own; and (P4) OR mediates the GEO-SCA association. The paper clarifies the construct boundaries, provides guidance regarding operationalizing GEO, OR, and SCA in future empirical research and identifies contextual aspects that characterize Southwest Nigeria, such as changing norms of sustainability compliance, increasing traceability requirements, and pressure to increase efficiency, which render the mechanism theoretically salient. Theoretically, the paper also re-examines GEO as a strategic direction informed by practice as opposed to a trait, and positions OR as a central mediator of processes as opposed to a marginal enabling factor, and suggests a contingent agenda on empirical validation in the context of agri-SMEs in the developing world. On the managerial front, the framework guides the owner-managers and support agencies to increase the intensity of low-cost scanning routines, high speed validation of green ideas and codified compliance and traceability practices as sources of defensible advantage. This is just a conceptual study using previous literature and situational understanding in establishing propositions that are meant to guide subsequent research studies.

Keywords: Cocoa value chain; SMEs, Conceptual framework, Green entrepreneurial orientation, opportunity recognition, sustainable competitive advantage

Introduction

Cocoa is considered to be one of the strategically important agricultural commodities in the world, and it has a foundation of the chocolate and confectionery industry and contributes to millions of households of smallholders in the humid tropics. The supply side has been getting more vulnerable because of climate change, ageing trees, plant disease, and increased sustainability and traceability demands in the key consumer markets, whereas international demand has proven to be more resistant due to recent macroeconomic volatility (International Cocoa Organization [ICCO], 2024; UNCTAD, 2023; European Commission, 2023).

The epicentre of this system is West Africa where Cote d'Ivoire and Ghana share most of the world production, and Nigeria and Cameroon serve as sources of other volumes that are essential to world grinders and chocolate producers (ICCO, 2024). The vulnerability as well as the strategic significance of this regional supply was demonstrated by the price spikes of the 2023/24-2024/25 seasons when processors had to deal with bean shortages, and countries of origin with both windfall and severe operational risks (Reuters, 2025).

The geographical location of Nigeria is of a historical and economically relevant in this context for the fact that since the colonial era up to the early independence days, cocoa has been the leading cash crop in the country that it is used to fund its public investments and livelihoods in the countryside throughout the Southwest region (TraceX, 2025; Akande et al., 2023). The producer prices were stabilised, access to credit grew, and quality control was coordinated to make Nigeria one of the leading producers in the world of the 1950s and 1960s (Olaniyan, 2025; Nowfal et al., 2025).

However, unfortunately, the boom of the oil industry registered in the 1970s instead shifted the policy and the state spending towards agriculture and the next decades were characterized by under-investment, older plantations, weaker extension services and vulnerability to the fluctuations in the international market with the collapse of state marketing institutions under the influence of the structural adjustment (TraceX, 2025; Ogunwolu et al., 2022; Beg et al., 2017). This has led to a chronic underperformance as compared to others in the region even in the favourable agroecological environments.

In Nigeria, cocoa remains a major non-oil export and a source of revenues to the rural areas, and its production is concentrated in Ondo, Oyo, Osun, Ogun, Ekiti, Edo, and Cross River States (Esan et al. 2025). At that, this industry has been grappling with a multi-layered set of constraints as it can be observed in regard to average farm yields that are below attainable standards due to old tree stocks, inaccessibility to better planting materials and inputs, and the persistence of pests and diseases (black pod and mirids) (Kongor et al., 2024; Ebaiarrey et al., 2024; Adebiyi et al., 2021). These frictions have been compounded by climate stress, which can be observed in the case of erratic rainfall, extremes heat, and the increased humidity that endangers flowering and pod-set, the shortening of harvest periods and increased disease pressure, and medium-term suitability models predict a translocation of optimal zones, with slower adaptation (Awazi, 2025; Adet et al., 2024; Lahive et al., 2019). Demographics is another headwind due to an increase in the average age of the cocoa farmers and a low involvement of the youth which increases the tightening of the labour supply and the increasing costs of transactions seasonally.

Besides the above evident issues, there are market and institutional aspects that are involved in the net adverse results. To illustrate, relying on exporting of Raw-bean has not stopped and simultaneously, the country has not increased its local grinding capacity to add value to the Raw-bean and this has seen Nigeria gain only a minor portion of the value chain segment as

compared to countries who have emphasized on local processing, branding and premium market positioning (ICCO, 2024). Yet again, the problem of outflow across the border and the uncontrolled informal trade devalue the registered volumes and foreign exchange earnings as well as deter the incentives in the quality improvement and organisation of different farms (Trust Africa, 2024).

Meanwhile, the sustainability governance is becoming stricter as can be seen in The European Union Deforestation Regulation (EUDR) that mandates geolocation of traceability and due diligence of cocoa presented into the EU market which in effect transfers the competitiveness of the price-only based competition to credible compliance systems, polygon mapping, grievance procedures and support of smallholders that can endure scrutinisation by buyers and regulators (European Commission, 2023). Similar anxieties of child labour and social protection, which have been carefully documented in the regional derivatives, amplify reputational and access risk among exporters in West Africa, including the produced to be supplied by Nigeria where the empiricative proof is sparser but where customer pressures are congregating [National Opinion Research Center] (NORC, 2020).

These forces are not restrictive only, but they also determine the edge of the strategic advantage. The recent cocoa price swings (a series of multi-year volatilities followed by highs in 2024-2025 caused by global shortages of supply) have provided producers with short-term rent (International Cocoa Organization [ICCO], 2025). This interest in investment can be used by firms, cooperatives and public agencies in Nigeria to hasten rehabilitation and replanting with better material, scale climate smart agronomy and integrated pest management and invest in digital traceability and supplier development that can comply with new compliance norms and reduce the long-run transaction costs (Akinbamini et al., 2025; ICCO, 2025; Bhatnagar et al., 2024). The announcements of private capital and the policy efforts are the indicators of a momentum, but whether persistently competitive will only be determined by the success of actors in bundling and reconfiguring capabilities, such as technical, organizational, and relational capabilities, in the face of uncertainty.

The paper, therefore, looks into sustainable competitive advantage in the cocoa industry in Nigeria under the contemporary strategy lenses that dominate the agrifood value-chain analysis. Resource-based view (RBV) focuses on valuable, rare, inimitable, as well as organizationally embedded assets as the source of abnormal returns whereas dynamic capabilities are concerned with the ability to detect opportunities and threats, pursue them by investing and coordinating at the right time and redesigning asset bases as situations change (Eisenhardt & Martin, 2000; Barney, 1991). When these concepts are mapped on cocoa, distinct levers can be identified such as climate-smart agronomy, better planting material, producer organizations and service platforms, reliability of processing and logistics, traceability and compliance systems, and market relationships, which can indeed change compliance obligations into strategic resources. The paper explains ways in which Nigeria can rebrand cocoa as a vulnerable commodity export and the means by which cocoa can be used to develop rural livelihoods, industrialize and become a strong player in global value chains.

The input is theoretical and practice-based. First, it synthesizes scattered facts on the performance and limitation of cocoa in Nigeria into a strategy model that aligns agronomic, organizational, and regulatory potentials. Second, it promotes the perception of sustainability compliance, in particular, geolocation traceability and social protection, as an object of profit, but only when these routines are integrated in service-intensive producer networks. Third, it determines policy and investment priorities, which is in line with RBV and dynamic-

capabilities arguments, such as coordinated replanting and rehabilitation, partnerships between the public and the private in the extension, digital infrastructure to support traceability, and specific help to support viable processing models. The rest of the paper presents the literature review on the topic, theoretical background, and applies it to the value chain of cocoa in Nigeria and makes conclusions on how the theory should be implemented by managers, policymakers, and development partners.

With the theoretical orientation of this paper, the discussion in question is conceptual in nature. It uses the existing literature, policy documents and analysis of the situation of the cocoa industry in Nigeria to construct a testable framework as opposed to reporting field information. These theoretical papers are essential in the formulation of grounded hypothesis and contextual models that will subsequently be proved in an empirical context (Jaakkola, 2020; Whetten, 1989).

The Inclusion of SMEs in the Cocoa Production in West Africa and Nigeria

Small and middle sized businesses are the main stakeholders in the cocoa value chain in West Africa as they are the linking tissues between the smallholder farmers and international markets. They include input supply, aggregation, and logistics, primary processing, and export intermediation functions. In other settings, such as Cote d'Ivoire, Ghana, Nigeria, and Cameroon, the SMEs also supply credit-in-kind, extension services, and market information to farmers, and thus fill the voids created by weakly-resourced formal institutions (Tambi & Mukum, 2024; Kouadio et al., 2023; Taku et al., 2020). Through the connection of the dispersed producers to the grinders, exporters and certification schemes, SMEs enhance efficiency and inclusiveness in the cocoa economy.

In Nigeria, the SMEs are essential given the scattered production structure. Smallholders constitute the majority of cocoa farmers whose farm sizes stand at 2-5 hectares on average, thus necessitating aggregation and coordination in order to become commercially viable. This is where SMEs intervene by arranging buying networks, funding harvest activities and safeguarding that the quality and sustainability standards demanded in global markets are met (TraceX, 2025; Akinrotimi, 2025; Kongor et al., 2024). With the limited grinding capacity, Nigeria cannot be compared with Ghana and Cote d Ivoire, thus, making the SMEs also the key players in the export channel, both in terms of supplying raw beans to the multinational purchasers and in the case of gradual process expansion into domestic processing.

These SMEs do more than cocoa as a contribution to the Nigerian economy. Being drivers of rural employment and income, they spur the local economies by creating jobs in warehousing, transporting, processing and other auxiliaries. Empirical data indicates that in Nigeria, the non-oil exports are a sizeable portion of agribusiness SMEs and that the latter are at the center of diversification efforts through governmental agricultural transformation agenda (Ikuemonisan, 2024; Ahemen et al., 2024). Their sensitivity to market opportunities also makes them key players to the introduction of sustainability practices, e.g., traceability systems, child-labor controls, and climate-smart agriculture, into daily transactions with the smallholders (European Commission, 2023).

Nonetheless, SMEs have structural constraints that limit their potential to transform. Availability of cheap finance is a long-term issue with commercial banks finding agribusiness lending a risky proposition, resulting in the use of informal or expensive credit. The lack of infrastructure, especially rural roads, storage capacity, and electricity, increases spending on transactions, and undermines competitiveness (Akaa et al., 2024; Gassiah & Kikula, 2022). In Nigeria, the scale of SMEs is again restricted by the poor institutional support and

inconsistency in regulations. The limitations notwithstanding, the dynamic and flexibility of SMEs highlight their primary focus in any policy supposed to reposition the cocoa industry towards sustainable competitive advantage.

Literature Review

Green Entrepreneurial Orientation (GEO)

Green entrepreneurial orientation builds upon the traditional dimensions of entrepreneurial orientation such as innovativeness, proactiveness and risk taking by incorporating environmental intent as a strategic posture and routines (Figiel & Badar, 2025; Habib et al., 2020). Stronger GEO firms intentionally seek within ‘‘green’’ areas, make investments in eco-innovations, and are ready to take calculated risks in order to create more environmentally superior products and processes (Al-Mamary, 2025; Anin et al., 2024; Qin et al., 2024). This way, they have built intangibles that are hard to imitate like stakeholder trust, green reputation, learning routines, and partnerships associated with persistent advantage in the natural-resource-based view (NRBV) (Din et al., 2024; Colbert, 2004). Empirical research in manufacturing and agri-food systems associates GEO with elevated levels of eco-product design, process eco-efficiency, partnership with environmentally friendly suppliers, and enhanced penetration on the market where sustainability preferences are salient (Rong et al., 2025; Zhang et al., 2024; Habib et al., 2020). Conceptually, GEO offers the strategic prism, in which environmental issues are conceptualized as sources of creating values more than a burden on compliance.

Opportunity Recognition in Sustainability Situations.

The main entrepreneurial process is opportunity recognition where actors determine, assess, and transform new opportunities when faced with uncertainty (Schlichte & Junge, 2024; Taleb et al., 2023; Wang et al., 2013). The cognitive views underline the importance of prior knowledge, recognition of patterns, and entrepreneurial awareness as the preconditions of opportunity discovery and creation (Zhu et al., 2024; Kusumawardhany &Tresnawati, 2019; Baron, 2006). The opportunity recognition in sustainability contexts is influenced by the capability of identifying both environmental and regulatory cues, including demand of traceability, low-carbon process, or certification pathways, and relating these cues to feasible business models (Akkermans, 2025; Alamandi, 2025; Fripp et al., 2023).

Companies that are more green oriented will scan more deeply in search of such signals, interact with sustainability oriented stakeholders and therefore will reveal a richer set of green opportunities than other firms (Chen & Rojniruttikul, 2025; Zhang & Liu, 2024; Anwar et al., 2024). The entrepreneurial alertness scales identified by most measurement works which operationalises opportunity recognition construct by including scanning/search, association/connection and evaluation/judgment scales (Tang et al., 2012) could be modified to focus on environmental scanning in agri-commodity chains.

Green Sustainable Competitive Advantage (GSCA)

Green sustainable competitive advantage is the performance advantage that is sustainable in that it is difficult to be acquired by the competitors since they are costly to imitate (Achmad & Wiratmadja 2025; Din et. al., 2024; Sang & Hung, 2024). The Porter-van der Linde logic assumes that environmental practices which are designed appropriately tend to fuel innovation, lessen waste and energy intensity, and enhance costs and quality at the same time (Cerin, 2006). The meta-analytic and review evidence tends to favor positive associations

between environmental and financial performance depending on the ability to complement and organizational fit (Mansour et al., 2024; Andries & Stephan, 2019).

In agri-food chains, the most common manifestations of GSCA are eco-efficiency, differentiation based on traceability and certification, risk reduction through compliance reliability, and relational rents, which are based on sustainability-oriented customers (Krstic et al., 2023; Pan et al., 2021). In the case of cocoa SMEs, increasing demands regarding geolocation, sourcing free of deforestation and social protection render compliance capability in itself a strategic asset when integrated in service-intensive producer systems.

Connection between GEO, Opportunity Recognition, and GSCA.

These constructs are linked sequentially by theories. The Green Entrepreneurial Orientation influences the search location and search methods, which increase the chances of finding opportunities associated with sustainability; the opportunity recognition then gives the channel by which the green intent is transformed into eco-innovations, credible compliance routines, and market alignment, the proximal drivers of GSCA (Al-Mamary, 2025; Anin et al., 2024; Coelho et al., 2023). This chain is supported by dynamic-capabilities reasoning: sensing (green scanning and alertness), seizing (investment and partnering towards eco-innovation and compliance), and reconfiguring (embedding green routines and supplier development) support persistence of advantage in environment where standards and technologies are dynamically changing (Selgas-Cors, 2025; Weber et al., 2025). To this end, we put forward three propositions as a theoretical article: stronger GEO firms have more green opportunity recognition; green opportunity recognition is a contributor of GSCA, and opportunity recognition is the mediating factor between GEO-GSCA.

Nigerian and African Agribusiness Environment.

The West African cocoa value chains present a good environment where sustainability pressure and entrepreneurial actions intersects. The development of the competitiveness and upgrading potential relies on the structure of institutions, organization of farmers, and market coordination, as they are the subject of historical studies of Ghana and Nigeria (ICCO, 2023; Oluwasegun & Eleri, 2021; Adewuyi et al., 2014). Modern governance introduces stricter sustainability and traceability principles most prominently by buyer standards and introducing regulations in primary markets, which place competition on price to one of credible compliance and service provision to smallholders. In this respect, the proactive green orientations embraced by cocoa SMEs are associated with the development of the aggregation, training, and traceability capabilities which enhance the recognition of eco-opportunities (e.g., certification niches, entry into the deforestation-free market) and translate them into the relational advantages with international buyers. The Nigerian supply structures with their dominance of smallholders and fragmented intermediation enhance the value of such capabilities, reducing the transaction costs, stabilizing of the quality and transforming compliance routines into entry barriers that competitors have difficulties overcoming (Chiaka et al., 2022; Gomez et al., 2021; Mgbenka & Mbah, 2016). The above propositions can be tested in West Africa and specifically in Nigeria due to these sector dynamics.

Propositions and Conceptual Model

This model was not empirically tested since it was a theoretical work. The propositions are built on the deduction of the existing theories, such as the Resource-Based View and Dynamic Capabilities framework, and applied to the context of the cocoa SMEs of Nigeria. The aim is to give out a conceptual road map to be empirically validated.

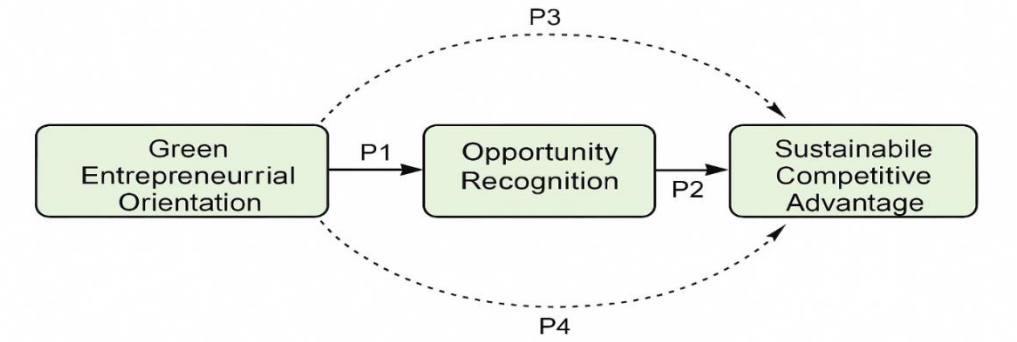

Figure 1. The conceptual Model of the Relationship between Green Entrepreneurial Orientation, Opportunity Recognition and Sustainable Competitive Advantage

The model illustrates the theoretical channel in which GEO can improve OR of firms which results in Sustainable Competitive Advantage among cocoa-oriented SMEs. Direct, dashed, connecting pathways between GEO and SCA are maintained to denote the option of partial mediation. The framework is also placed in the context of the cocoa SME industry in Nigeria, where sustainability is one of the strategic imperatives.

Propositions

P1 (**GEO → Opportunity Recognition**): The firms that have a better GEO are those that have a high degree of opportunity recognition in the cocoa value chain.

P2 (**Opportunity Recognition → SCA**): Opportunity recognition has a positive relationship with achieving sustainable competitive advantage among cocoa-oriented SMEs.

P3 (**GEO → SCA, direct**): The Green Entrepreneurial Orientation is positively related to the sustainable competitive advantage, which is net of the opportunity recognition.

P4 (Mediated relationship): Opportunity recognition is a mediated relationship between Green Entrepreneurial Orientation and Sustainable Competitive Advantage.

Model note:

The model identifies a green strategic posture as the motivating force of systematic scanning and assessment activities of the environment that aid in the identification of sustainability-oriented opportunities. Opportunity recognition is conceptualized as the nearest process by which companies gain sustainable advantage, namely, Eco-innovation, resource efficiency, regulatory capability, and differentiation. The final facet of the direct relationship between GEO and SCA is maintained as a residual to ensure that the firm-internal environmental routines can provide beneficiaries on their own, without the need to explicitly recognize opportunities.

Green Entrepreneurial Orientation (GEO) and Sustainable Advantage.

Jiang et al., (2018) define green entrepreneurial orientation as the strategic position of the firm that incorporates both entrepreneurial orientation (innovativeness, proactiveness, risk-taking) and environmental responsibility. Researchers claim that, under the condition of the high GEO of SMEs, there is higher probability of developing eco-innovations, minimizing waste, and product differentiation, which leads to the creation of SCA (Oduro, 2024; Sharma

et al., 2022). Examples of how GEO can be applied in the cocoa industry include the adoption of environmentally friendly approaches to farming, certification of cocoa as organic, and green branding to access the high-end export markets. Such practices not only enhance reputation of the firm, but also bring hurdles to imitation, which is in line with the Resource-Based View (Opoku, 2019; Barney, 1991). In line with the conceptual model (P1-P4), those firms that have stronger GEO should achieve the advantage mainly through Opportunity Recognition, and any direct GEO - SCA relationship is considered as contextual.

Opportunity Recognition and Sustainable Advantage

The opportunity recognition generally means that the entrepreneur has the capacity to recognize and respond to arising business opportunities (Ardichvili, Cardozo, & Ray, 2003; Shane & Venkataraman, 2000). It can be positioned in a green context, i.e., identifying opportunities that are sustainable to the environment, e.g., fair-trade cocoa demand, climate-smart farming, waste-to-value technologies (Rawat, 2025; Okolo et al., 2023).

Institutional voids and lack of market access are common among the SMEs in cocoa in Nigeria. Resilience and competitive advantage allow business owners who are capable of recognising green opportunities to build on what was discovered (Badjeena et al., 2024; Anabaraonye et al., 2021). It corresponds to the institutional theory, according to which legitimacy is received by actors that respond to regulatory and normative requirements to stay sustainable (Zhang et al., 2024; Roxas & Marte, 2022). And according to P2, Opportunity Recognition will also have a positive relationship with SCA among cocoa-oriented SMEs.

Integrating GEO and Opportunity Recognition

The convergence of GEO and the opportunity recognition is imperative. The strategic orientation is furnished by GEO and the entrepreneurial mechanism is furnished by opportunity recognition to leverage green opportunities. The SMEs integrating the two are in a better position to innovate sustainably, reach quality markets as well as resist competition. This assimilation is particularly relevant in Nigeria, where cocoa SMEs have to cope with such weaknesses as insensitive global prices, climate change impacts and insufficient institutional policies (TraceX, 2025; UNCTAD, 2016). Those companies that embark on GEO and at the same time identify and capitalize on green opportunities can be distinguished and be able to occupy long-term market positions. In line with conceptual model (P1-P4), companies that possess stronger GEO should achieve benefit mostly through Opportunity Recognition, and any direct GEO - SCA relationship is regarded as contextual.

Discussion and Implications

The result of this theoretical exploration highlights the difficulty of creating sustainable competitive advantage in cocoa production based on GEO, opportunity recognition and green sustainable advantage. On an international scale, researchers concur that agri-value chains can be redefined based on sustainability-oriented entrepreneurship, especially in developing situations where agriculture continues to be the pillar of the countries (Hasan et al., 2025; Oko et al., 2024; Mawad & Freiha, 2024). In the case of West Africa, where Nigeria, Ghana, and Cote d'Ivoire have a monopoly on the cocoa market, this conversation is relevant to the dire necessity of competing cocoa industry in export competitiveness and sustainability regarding both the environment and social welfare.

Again, it should be mentioned that the relations outlined here are conceptual. They are designed to inform the comprehension of the relations of Green Entrepreneurial Orientation, Opportunity Recognition, and Sustainable Competitive Advantage in the context of

developing-country value chains as opposed to providing statistical outcomes. The propositions arising out of this framework can be taken as hypotheses in future empirical researches in the subsectors of agribusiness.

The implication is particularly relevant in the Nigerian context as the cocoa that used to bring more than 60 percent of the foreign exchange earnings to Nigeria in the 1960s now gives a lower percentage of less than 2 percent due to decreasing productivity, climate problems, and structural shortcomings (Ashinze, 2022; Nkwi et al., 2021). However, SMEs, in particular, those involved in processing, logistics, and marketing continue to play a critical role. Through incorporating green entrepreneurial orientation - in waste reduction, organic certification and use of renewable energy - the Nigerian cocoa SMEs would be able to access the premium markets globally, as well as lessen environmental degradation (Adiguzel & Bayram, 2025; Suresh et al., 2024).

Managerial Implications

The implementation of GEO requires more than lip service from the managers and SME owners in the cocoa value chain in Nigeria. There must be its entrenchment in product design, manufacturing and the positioning of products in the market. To provide an example, a company investing in traceability and green certifications will have a strong chance to be unique and sell at a higher cost in the European and North American markets (Nygaard, 2023; Mol & Oosterveer, 2015). This practically implies that SMEs have to pull resources to adopt technology, enhance farmer training and establish networks with international buyers interested in sustainable cocoa. These strategies do not only enhance competitiveness but also create resilience to global shocks including price increases and decreases of commodities.

Also, the opportunity recognition of cocoa entrepreneurship in Nigeria is frequently based on the unmet consumer demand for products that are healthier and ethically sourced. Companies embracing the opportunity of by-products (e.g., cocoa husk to become bio-energy or cosmetics) can increase sources of income and lessen waste, as well. This is in line with the principle of the circular economy, which is becoming popular in the agribusiness of Africa (Montesdeoca Chavez et al., 2025; Anoraga et al., 2024; Adewale et al., 2020). Managers, therefore, have to develop dynamic capabilities that enable them to scan, analyze, and respond on sustainability-driven opportunities within a short period of time.

Policy Implications

Nigerian government has a significant role to play in policy level so that it can influence an enabling environment. The existing constraints such as inconsistent policies, laxity in implementation of environmental laws, and lack of financial incentives undermine the competitiveness of SMEs (Akinlabi & Ikwuoma, 2025; Tridge, 2024; Umukoro & Omozue, 2024). One of the possible policy interventions is the tax incentive on using green technologies, organic certification, and a partnership between the government and business to fund research on climate-intelligent cocoa production. The example of the Cocoa Board (COCOBOD) of Ghana, which institutionalized the quality control and support systems of farmers, can also be used to draw lessons, as Ghana has a stronger image regarding the quality of its cocoa exports, which was achieved by supporting its SMEs (Ahoa et al., 2021; Quarmine et al., 2012). The same models could be adopted in Nigeria, where the focus on sustainable practices has to ensure that the country has a better image of its SMEs.

Also, encouraging partnership between universities, research institutes and industry can propel the process of coming up with innovative green practices. As an example, Nigeria can

lead the pack by having the National Cocoa Research Institute (CRIN) to lead on research of disease-resistant and climate-resistant cocoa strains besides integrating sustainability units into SMEs and farmer cooperative training curriculum.

Theoretical Implications

Theoretically, the paper drives forward the argument because it locates GEO, green opportunity recognition, and green sustainable advantage in the cocoa industry of Nigeria. Although the previous research has considered these constructs individually, namely, Green Entrepreneurial Orientation and firm performance, Opportunity Recognition and innovation outcomes, and Sustainable Competitive Advantage and resource capabilities, their combination in a developing country context is inadequate and remains conceptually underdeveloped (Amankwah-Amoah et al., 2023; Ndubisi & Nair, 2021; Linan et al., 2020). This conceptual synthesis consequently ends existing knowledge of sustainability-oriented entrepreneurship in developing economies and indicates that green entrepreneurship in agriculture is not just a business orientation concept but a socio-economic reaction to climate vulnerability, reduction of poverty, and export diversification (Safitri, 2024; Tuncer, 2024).

Moreover, the Nigerian case demonstrates that the correlation between the entrepreneurial orientation and sustainability results depends on the institutional voids and deficits in infrastructures. It underscores why Western-based frameworks of sustainable entrepreneurship should be changed to address African realities where SMEs tend to operate in ineffective governance systems and unstable markets (ICCO, 2024; Rosario et al., 2022).

Overall, it is highlighted in the discussion that the meeting point of the green entrepreneurial orientation, green opportunity recognition, and sustainable advantage is not only a strategic need but also a socio-economic need towards Nigeria and West Africa. With references to the world best practices and realities in the country, the SMEs in the cocoa production can be utilized as sources of sustainable development, innovations and ecological accountability. Although it remains limited by the gaps in policies, infrastructural shortages, and market uncertainties, this reciprocal interaction provides a solution to bringing cocoa-producing nations in line with international sustainability needs, as well as national development agendas (Kolapo et al., 2025; Dago & Pei, 2025; ICCO, 2023). It is on this ground that the conclusion now shifts to sum up these findings defining the essence of the contributions of the study and indicate the way forward of theoretical and practical interactions in the future.

Conclusion and recommendations

Conclusion

The paper has examined the theoretical bases of the relationship between green entrepreneurial orientation, green opportunity recognition, and sustainable competitive advantage in the context of the cocoa production in Nigeria and West Africa. We have based our argument on recent controversies over sustainability and entrepreneurship literature by positing that the notion of environmental awareness in entrepreneurial behaviour is not only ethically good but also a strategic benefit. The framing of this discussion by cocoa, which is one of the pillars of agricultural economy in Nigeria, showed how SMEs can be able to achieve the goals of profitability, environmental responsibility, and long term resilience. This work is not based on primary data; the investigators uses the existing literature and situational facts to develop a conceptual model, unlike the empirical studies. This theoretical basis is to provoke more research that will be able to test empirically the postulated linkages in cocoa value chain in Nigeria and West Africa.

The analysis proves that GEO contributes to the innovative thinking and proactive strategies that help firms to recognize the new opportunities in the area of sustainable cocoa production and marketing. The process of identifying green opportunities serves as a mediating process through which the entrepreneurial desire is correlated with viable channels of acquiring and maintaining the competitive advantage. These factors together form the grounds of the attainment of a green sustainable competitive advantage exceeding the conventional economic performance through the addition of ecological stewardship and social wellbeing.

Notably, the Nigerian and West African cocoa industries possess structural peculiarities like price fluctuations, environmental deterioration, as well as climate change impacts, and insufficient institutional coverage. These facts highlight the need to make sustainability an element of entrepreneurial strategy. One of the implications is that, SMEs should not consider sustainability as an external need by regulators or buyers around the world but as a source of innovation and differentiation that can enhance competitiveness in the local and global market.

Policy-wise, the results support the necessity of the supportive institutional frameworks, such as incentives on green practices, better access to finance of sustainable initiatives, and better extension services. On the managerial level, companies need to invest in the development of internal capacity that will enable them to identify new opportunities of green opportunities and turn them into sustainable business patterns. In theory, the paper can add to the entrepreneurship and sustainability literature by showing how the reality of contexts in developing economies such as Nigeria can provide new insights to the existing knowledge on sustainable competitive advantage.

To sum up, sustainability in the cocoa industry is not an alternative scenario but a must, in order to survive and remain relevant over time. Policymakers, small and medium enterprises should collaborate and make sure that entrepreneurial practices do not harm ecological integrity and the well-being of society. Research in future can build on this theoretical perspective by empirical research to test the hypotheses, bring gender into the analysis of entrepreneurial strategies and comparative knowledge on various agricultural value chains. The result of such efforts will serve not only to accrue more evidence but also to offer viable ways forward to make agriculture in Nigeria and West Africa engines of sustainable development.

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