

TOWARDS ENVIRONMENTAL WELLBEING: ROLES OF TOP MANAGEMENT IN PROMOTING ENVIROPRENEURIAL CULTURE AMONG SUPPLY CHAIN EMPLOYEES IN NIGERIA

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Abstract

Nigerian manufacturing firms have been called out to increase their attention to their supply chain management, to reduce their carbon footprint and to promote sustainability. Nigeria is one of the fastest-growing economies in Africa, however, this growth has come at a cost to the environment, with the country ranking very high as one of the most environmentally impacted in the world, with less than 12% of the firms in the manufacturing sector have implemented sustainable practices in their supply chain. Given this understanding, this study highlights the critical roles that top management of Nigerian manufacturing firms play to promote environmental consciousness (enviropreneurial culture) among supply chain employees. Using qualitative research design, ten purposively selected top management staff of five (5) manufacturing firms were interviewed. Findings from the interview brought to the fore that top management of the selected manufacturing firms promotes enviropreneurial culture amongst supply chain employees by playing seven distinct roles. These roles are: Setting the vision and values, providing leadership and commitment, developing policies and procedures, allocating resources, promoting collaboration and communication, recognizing and rewarding environmental initiatives and monitoring and evaluation. Based on these findings, the study recommended that manufacturing firms integrate sustainability goals into the company's vision, mission, and strategic goals. Top management should lead, by example, showing their dedication to sustainable practices and communicating the importance of environmental consciousness to all employees. Also, manufacturing firms should set up robust communication channels to disseminate information, share best practices, and create awareness of sustainability initiatives. Regular communication, such as newsletters, intranet portals, and team meetings, should be used to keep employees informed and engaged in environmental efforts. With these recommendations, the study predicts the achievement of green(er) supply chain management practices in the Nigerian manufacturing sector.

Keywords: Enviropreneurial Culture, Supply Chain, Nigeria, Top Management

JEL Classification: I3, Q2, Y9

1. INTRODUCTION

As climate change continues to be a pressing global issue, many industries – including manufacturing firms- are under scrutiny for their environmental impact. One area that has been called out as a key concern for these manufacturing firms is the increment of their attention to their supply chain management, to reduce their carbon footprint and promote sustainability (Sharma et al., 2022). Nigeria is one of the fastest-growing economies in Africa, with manufacturing accounting for over 10% of its GDP (Antai, Udo, & Effiong, 2016). However, this growth has come at a cost to the environment, with the country ranking very high as one of the most environmentally impacted in the world (Udoh & Willard, 2023), with less than 12% of the firms in the manufacturing sector have implemented sustainable practices in their supply chain (Owie & Ogbuehi, 2022). This highlights a critical need for top management to take a more proactive role in promoting environmental consciousness among supply chain employees. By doing so, they can not only reduce their environmental impact but also gain a competitive advantage in the global market where sustainable practices are becoming increasingly valued.

To address this issue, the top management of Nigerian manufacturing firms needs to create an organizational culture that prioritizes environmental sustainability. This involves promoting a shared vision of sustainability and providing the necessary resources and incentives for employees to adopt eco-friendly practices in their day-to-day work. While several approaches (i.e., green manufacturing, cleaner production, green lean, reverse logistics and circular economy) have been suggested as practical ways for achieving environmental sustainability (Piyathanavong et al., 2019; Thomas et al., 2012), little is known about how these approaches have been weaved by the top management staff of Nigerian manufacturing firm to create an organizational-wide culture that puts supply chain employees at the center of the implementation of these approaches. But one effective approach that could aid Nigerian manufacturing firms in greening their supply chain is to entrench and foster an *enviropreneurial culture*, where employees are encouraged to take initiative and produce innovative ideas to green the supply chain. This requires a shift in mindset from simply following regulations to actively seeking opportunities to reduce the company's environmental impact. Therefore, it becomes the responsibility of top management staff of manufacturing firms who possess “*enviropreneurial orientation*” (Namagembe & Ryan, 2015 p. 8) to foster *enviropreneurial culture* among supply chain employees through the development of environmentally and ecologically friendly policies that do not jeopardize the ability of the firm to create revenue and make a profit (Namagembe & Ryan, 2015).

Extant research has shown that when top management plays an active role in promoting sustainability, it can lead to significant improvements in the company's environmental performance (Awan et al., 2023; Glass, Cook & Ingersoll, 2016). For example, in the United States of America, a study by Eccles et al. (2012) found that companies with strong environmental policies outperformed their peers in the stock

market by 4.8% annually. Similarly, a survey by Lacy and Hayward (2011) found that 93% of CEOs believe that sustainability is critical to the future success of their companies. In Africa and Nigeria to be precise, research on the roles of top management of manufacturing firms in fostering *enviropreneurial* culture amongst supply chain employees is crucial for several reasons. First, hinged on the theory of reasoned action (Fishbein, 1979), it is increasingly important to understand how supply chain employees become environmentally conscious based on the sense-making and control mechanism (culture) created by top management to guide, shape and encourage eco-friendly attitudes and behavior in the organization. Second, it is important to understand if the top management staff themselves are environmentally oriented or if they are forced by some external or internal factors (i.e., laws, staff initiative) to reduce their carbon footprints for them to become a responsible organization. Third, despite numerous studies that have been conducted on *enviropreneurial* culture globally, it is still at a sprouting stage in Africa (Namagembe et al, 2016; Namagembe et al. 2021). Given this understanding, it becomes imperative to investigate the roles of top management in fostering *enviropreneurial* culture among supply chain employees in Nigerian manufacturing firms. Thus, the study raised the following research questions:

- i. How does top management support influence the development of an *enviropreneurial* culture among supply chain employees in selected Nigerian manufacturing firms?
- ii. What are the key components of an *enviropreneurial* culture and how do they contribute to supply chain sustainability in Nigerian manufacturing firms?
- iii. What challenges do Nigerian manufacturing firms face in developing an *enviropreneurial* culture among supply chain employees and promoting supply chain sustainability, and how can these challenges be overcome?
- iv. How can Nigerian manufacturing firms measure the success of their *enviropreneurial* culture initiatives and supply chain sustainability practices, and what are the potential benefits of these practices to the firms and their stakeholders?

2. LITERATURE REVIEW

2.1. ENVIRONMENTAL SUSTAINABILITY IN SUPPLY CHAINS: CONCEPTS AND CHALLENGES

Environmental sustainability has risen to prominence in supply chain management as businesses acknowledge the urgent need to address environmental challenges alongside keeping efficient and enduring operations. Within the realm of supply chains, environmental sustainability denotes the adoption of practices that mitigate detrimental ecological impacts while upholding economic and social viability (Nakamba, Chan & Sharmina, 2017). This multifaceted approach entails the responsible stewardship of resources, the curbing of waste generation, and the

alleviation of environmental risks spanning the entire lifecycle of the supply chain. Crucially, this approach aligns seamlessly with the triple bottom-line framework, which accentuates the intricate interplay between environmental, economic, and social dimensions (Muñoz-Torres et al., 2021). Within the context of manufacturing firms in Nigeria, a range of formidable environmental challenges manifests. These encompass deficiencies in waste management infrastructure, flagrant energy inefficiencies, the presence of water scarcity, pervasive air pollution, and the grim specter of deforestation (Ezeah & Roberts, 2014). Complicating matters, the landscape is further marred by regulatory intricacies, inconsistent enforcement practices, and a glaring lack of environmental awareness (Olufemi, 2017). Collectively, these factors underscore the pressing necessity for the embrace of sustainable supply chain practices to combat and rectify the looming menace of environmental degradation.

Incorporating green practices into the fabric of supply chain management offers a panoply of compelling advantages. Foremost, such integration offers the enticing prospect of reduced operational costs, driven by the judicious employment of energy-efficient measures and resource optimization. These strategies, in turn, engender a fertile ground for long-term financial sustainability. Secondly, the infusion of eco-conscious practices into the supply chain bolsters brand reputation, fostering stronger and more authentic relationships with stakeholders. By proving a steadfast commitment to environmental stewardship, businesses resonate more deeply with environmentally conscious consumers and investors. This resonance invariably translates into a tangible competitive edge, as modern consumers and stakeholders gravitate towards and reward environmentally responsible enterprises. At the crux of this transformative paradigm lies the concept of an "*enviropreneurial*" culture. Such a culture embodies a mindset where employees, particularly those embedded within the intricate tapestry of the supply chain, actively find and zealously champion eco-friendly initiatives. Here, the role of top management appears as pivotal; their leadership orchestrates the cultivation of this culture (Namagembe et al. 2021). This entails the articulation of unequivocal environmental goals, the provision of visionary guidance, and the empowerment of employees to contribute innovative ideas. Beyond its immediate benefits, an *enviropreneurial* culture catalyzes internal efficiency enhancements while also galvanizing a broader culture of relentless innovation, all of which remain inextricably entwined with overarching environmental goals (Nachum & Ogbechie, 2023).

2.2. UNDERSTANDING THE CONCEPT OF AN *ENVIROPRENEURIAL* CULTURE

The emergence of the "*enviropreneurial* culture" as a transformative catalyst for advancing sustainable practices and environmental initiatives within organizations underscores a profound shift in contemporary business paradigms. At its core, this concept is a dynamic interplay between a robust organizational culture and the pivotal role of engaged employees. This synthesis is emblematic of a

comprehensive approach that not only shapes the behaviors and attitudes of individuals but also propels the entire organization towards a more environmentally conscious trajectory (Namagembe et al, 2016). A robust organizational culture functions as the bedrock upon which the entire edifice of sustainable practices is constructed. Its influence is pervasive, molding the very fabric of an organization's DNA (Kantabutra, 2021). When imbued with a resolute commitment to environmental sustainability, this cultural foundation becomes an unwavering impetus propelling the seamless integration of eco-conscious practices across operational domains. Empirical research underlines the profound impact of cultural alignment with environmental stewardship (Dyck, Walker & Caza, 2019). Organizations that meticulously define and uphold a set of values intricately woven with sustainability principles are distinctly predisposed to embrace and champion green initiatives across their operational spectrum. This symbiotic relationship between culture and sustainability not only ensures steadfast adherence to eco-friendly practices but also augments the organization's capacity to withstand and navigate the intricate landscape of environmental challenges (Kantabutra, 2021).

Central to the success of an *enviropreneurial* culture is the pivotal role of employee engagement. Positioned as the fulcrum upon which sustainable practices pivot, engaged employees exemplify a profound fusion of commitment and proactive participation. This heightened engagement draws employees into a sphere where organizational goals harmonize with individual aspirations, forging a nexus of purposeful dedication (Masood, Malik & Durrani, 2023). Within the environs of an *enviropreneurial* culture, these engaged individuals' metamorphoses into veritable champions of sustainability. Their heightened awareness propels them to uncover opportunities for eco-friendly innovation and to ardently advocate for their practical realization. Empirical evidence illuminates a compelling positive correlation between the degree of employee engagement and the robust integration of sustainable behaviors (Kossyva et al., 2023). This correlation serves as a tangible testament to the profound influence of engaged staff members in instigating and perpetuating green practices, seeding their roots from the very grassroots of the organization.

Yet, the true dynamism of the *enviropreneurial* culture lies in the seamless confluence of a potent organizational culture and heightened employee engagement. The symphony of these forces crafts an environment where environmental responsibility converges with an ethos of innovation. Within this fertile terrain, employees are not merely passive participants but empowered contributors, enabled to channel their energies towards meaningful and sustainable initiatives. Therefore, a palpable sense of ownership and pride takes root, fostering a cascading effect of heightened engagement and collective dedication to affecting positive environmental outcomes. This dynamic confluence accentuates the collective influence of individual actions, a virtuous cycle perpetuated by a feedback loop of inspiration and innovation.

2.3. TOP MANAGEMENT'S INFLUENCE ON *ENVIROPRENEURIAL* CULTURE

The profound influence of top management in cultivating an *enviropreneurial* culture within organizations unfolds as a pivotal and intricate phenomenon, shaping the very essence of the corporate landscape. At the epicenter of this dynamic lies top management's strategic vantage, enabling them to mold an organization's values and chart its trajectory (Vuori & Huy, 2022). A resolute commitment to environmental sustainability, when emanating from the upper echelons, transcends mere policy and becomes an integral driver infusing the entire organizational ecosystem with an aligned sense of purpose centered on eco-consciousness. Robust research underscores the transformative power of top management's unequivocal endorsement of sustainability, which triggers a paradigm shift that interlaces environmental considerations deep within the tapestry of an organization's ethos (Tseng, Lim & Wu, 2018). By seamlessly integrating ecological concerns into mission statements and strategic blueprints, top management steers the course toward an *enviropreneurial* culture that resonates throughout every echelon of operation, ushering in a holistic embrace of sustainable principles. The far-reaching consequences of top management's commitment cascade into the realm of employees' environmental attitudes, bearing testimony to the ripple effect of visionary leadership. This cascading influence fosters a fertile environment where environmental considerations are organically woven into the fabric of the organization's success narrative. This interplay cultivates a collective sense of purpose, underscoring the intrinsic link between environmental stewardship and overall achievement (Agyabeng-Mensah et al., 2020). As a natural collar, employees are galvanized to embrace eco-friendly behaviors, infusing their roles with a higher sense of significance. Notably, empirical studies affirm a direct and positive nexus between top management's dedication to sustainability and a tangible shift in employees' environmental attitudes, further substantiating the profound role of leadership in shaping the bedrock of organizational values (Agyabeng-Mensah et al., 2020; Nayal et al., 2022).

Within the context of supply chains literature, tangible examples appear, casting an illuminating spotlight on top management's pivotal role as a catalyst for sustainable transformation. The narratives of these visionary leaders reverberate as inspiring case studies where strategic foresight triggers a ripple effect across the entire supply chain ecosystem (Silvestre, 2015). The domino effect set in motion by top management's resolve creates a symbiotic synergy, propelling suppliers and partners toward the adoption of sustainable practices (Dai, Xie & Chu, 2021). In these instances, the commitment of top management transcends organizational boundaries, resonating as a clarion call for change. The determination to curtail carbon footprints, advance circular economy principles, and prioritize sustainable sourcing echoes throughout the interconnected web of suppliers and stakeholders, serving as a testament to the catalytic role of visionary leadership.

Intricately woven into the fabric of fostering an *enviropreneurial* culture is the intricate dance between enablers and barriers, which collectively influence the adoption of sustainable principles. The enablers, orchestrated by top management, include effective communication strategies that ensure a cohesive understanding of sustainability imperatives. The provision of necessary resources underscores the tangible commitment to transformation. Clear environmental goals set by top management serve as guiding beacons, illuminating the path toward an *enviropreneurial* future (Agyabeng-Mensah et al., 2020). However, this journey is not devoid of barriers. Resistance to change, coupled with a lack of awareness, forms a counter-narrative that can impede progress. Moreover, perceived conflicts between environmental goals and financial viability can cast shadows. In these dynamics, top management appears as a critical necessity, charged with dismantling barriers and nurturing an ecosystem conducive to sustainable growth. Their leadership mandate involves fostering open lines of communication, incentivizing eco-friendly practices, and deftly aligning sustainability goals with the broader contours of business imperatives.

2.4. ENVIROPRENEURIAL CULTURE: CULTURAL AND CONTEXTUAL CONSIDERATIONS IN ITS ADOPTION

The intricate journey of cultivating an *enviropreneurial* culture within Nigerian manufacturing firms underscores the imperative of harmonizing global sustainability principles with the rich tapestry of local values and realities (Sharifi & Murayama, 2015). This debate unravels the nuanced interplay of cultural and contextual nuances, accentuating their pivotal role in shaping an *enviropreneurial* ethos. The profound influence of cultural emphasis on community and collective responsibility stands as a cornerstone in building an *enviropreneurial* culture. Nigerian manufacturing firms are uniquely poised to use the deeply ingrained sense of communal identity and shared accountability that characterizes the local culture. By strategically harnessing these cultural threads, organizations can instill a profound shift in eco-conscious behaviors. Framing sustainable practices as collective endeavors that benefit not only the organization but also the wider community resonates deeply within the cultural fabric. This harmonious alignment between sustainable actions and communal values should foster an innate sense of pride and ownership, propelling employees to become active agents of positive change (Luberenga, 2012). The trajectory of fostering genuine engagement hinges upon the alignment of sustainability efforts with local values and traditions. Drawing inspiration from cultural practices that underscore stewardship of natural resources and interconnectedness offers a potent avenue. By interweaving these values into the very essence of sustainability initiatives, organizations can tap into a wellspring of intrinsic motivation and cultural relevance. These fusion bridges the chasm between global sustainability goals and local sensibilities, engendering a profound connection and investment in *enviropreneurial* pursuits (Sharifi & Murayama, 2015). The

resulting resonance enriches the journey, underscoring how sustainability aligns not only with organizational goals but also with deeply cherished cultural tenets.

The economic and regulatory landscape in Nigeria introduces a dynamic interplay of opportunities and challenges in fostering an *enviropreneurial* culture (Ajike & Adefulu, 2021). An astute understanding of this terrain is pivotal for effective implementation. Economic considerations, including the potential for cost savings through resource efficiency and waste reduction, appear as catalysts for prioritizing sustainability (Tseng et al., 2018). This economic incentive harmonizes with the cultural emphasis on responsibility, creating fertile ground for transformative change. Concurrently, aligning with evolving regulations and policies underscores an organization's unwavering commitment to environmental stewardship. This alignment proves a seamless integration of sustainability into the organizational fabric and galvanizes a resilient *enviropreneurial* culture. Amid the global backdrop of best practices, the local context remains paramount. The pragmatic translation of global ideals to local realities is a pivotal side of the adoption process. Nigerian manufacturing firms must navigate their unique landscape, considering factors such as resource availability, technological infrastructure, and socio-economic conditions. The process of contextual adaptation ensures that sustainability initiatives stay possible, attainable, and harmoniously aligned with the organization's distinct aspirations and limitations (Nayal et al., 2022).

In synthesis, the voyage towards an *enviropreneurial* culture within Nigerian manufacturing firms intertwines cultural heritage and contextual dynamics into a cohesive narrative. The harmonization of community values, alignment with local traditions, navigation of economic landscapes, and contextual adaptation of global best practices culminates in a comprehensive approach. This approach empowers organizations to cultivate an *enviropreneurial* culture that is deeply rooted in local identity yet resonates on a global scale. By nurturing this harmonious relationship between sustainability and culture, Nigerian manufacturing firms would be embarking on a transformative journey towards a greener future.

3. METHODOLOGY

This study is analytical and descriptive which interrogated the roles of top management of manufacturing firms in Nigeria in fostering *enviropreneurial* culture amongst supply chain employees with a view to creating a sustainable supply chain management that takes into cognizance the environment while creating revenue and profit. This study adopts qualitative research design. The qualitative approach was considered proper because the study aims to explore the immediate (and future) strategies that top management teams have put in place to foster *enviropreneurial* culture amongst supply chain employees in the Nigerian manufacturing sector with the goal of creating a sustainable manufacturing environment in Nigeria. The study also adopts interpretive phenomenological analysis (IPA) as an approach that allows the researcher to gain insights from respondents through an open dialogue (Lannan,

2015). This theoretical perspective essentially relates to the research questions because it looked at ways top management ensures that their supply chain employees become environmentally conscious. Data for the study was collected through a semi-structured interview schedule consisting of four open-ended questions that allowed for prompts and encouraged respondents to respond freely and in detail as required for IPA (Alase, 2017). Through the interview, respondents were meaningfully engaged and able to describe their experiences following the scope of the study while also allowing the researcher to engage in a dialogue through prompts and follow-up questions (Abbot, 2013). The respondents were ten purposively selected senior managers and directors of supply chain departments of 10 manufacturing firms working in the Nigerian Food and beverage sector and whose annual revenue is between 50 and 100 billion naira. As Smith (2003) suggested, IPA studies should have small samples as reading testimonies from large samples can obscure the understanding of the subject. A smaller sample, therefore, allowed for a deeper analysis of experiences (Lannan, 2015; Verrastro et al., 2020). The respondents were briefed about the study and assured confidentiality of the data. They were also informed that participation was voluntary prior to the interview and were free to leave at any point where they felt uncomfortable. Verbal consent was recorded prior to the study and respondents were given pseudonyms to guarantee anonymity. Data analysis was done using the interpretive phenomenological analysis (IPA) because it allows the researchers to make sense of existential realities through an intense interpretive engagement of what is said (Creswell & Poth, 2016). The first step in the analysis procedure is reading and re-reading the transcript to encourage familiarity. During the process, thoughts, reflections and codes were developed and noted. After another reading, preliminary themes were developed. The preliminary themes were then clustered according to common meanings (Alase, 2017). A textural and structural description of respondents' responses was done for each theme, including verbatim quotations from the transcript (Alase, 2017). The procedure was repeated for each transcript.

4. FINDINGS AND DISCUSSIONS

The responses were grouped based on the research questions and the supply chain directors' and managers' insights were analyzed to show themes that appeared from each research question.

How does top management support influence the development of an *enviropreneurial* culture among supply chain employees in selected Nigerian manufacturing firms?

Analyses of the interview transcripts according to the ten respondents revealed that top management of the selected manufacturing firms fosters *enviropreneurial* culture amongst supply chain employees by playing seven distinct roles (setting the vision and values, providing leadership and commitment, developing policies and procedures, allocating resources, promoting collaboration

and communication, recognizing and rewarding environmental initiatives and monitoring and evaluation). Respondents highlighted that top management plays a pivotal role in shaping the organization's direction and culture by setting a clear vision and values emphasizing environmental sustainability. By doing so, top management sets up a solid foundation that communicates the company's commitment to eco-conscious practices and encourages supply chain employees to align their actions with this vision (Ilyas, Hu & Wiwattanakornwong, 2020). One respondent believed:

"... we clearly communicate our commitment to environmental sustainability by integrating it into our mission statement and core values. We emphasize the importance of minimizing our ecological footprint and encouraging our supply chain employees to align their actions with our vision."

Additionally, the respondents' answers show that top management's commitment to environmental sustainability acts as a catalyst for creating an *enviropreneurial* culture. By actively endorsing and championing green practices, top management leads by example and sets the tone for the entire organization. Their visible commitment fosters a sense of purpose and ownership among supply chain employees, motivating them to embrace sustainable behaviors in their daily tasks (Kumar, Meena & Difrancesco, 2021). This is clear in the response of a respondent who averted that:

"We set up sustainability goals and aims that are linked to our overall business strategy. By clearly articulating our vision, we motivate our employees to embrace sustainable practices in their daily work."

Likewise, top management's involvement in developing clear and comprehensive environmental policies and procedures was highlighted by the respondents. By setting up specific guidelines and frameworks for sustainable practices, the top command provides a roadmap for supply chain employees to follow (Çankaya & Sezen, 2019). These policies not only prove the organization's dedication to environmental stewardship but also create a structured framework that guides employees' actions and decisions. This is clear in the submission of a respondent who noted that his company:

"...actively promote environmental vision and values by integrating sustainable practices into supply chain operations. This includes reducing waste, improving transportation routes, and collaborating with eco-conscious suppliers."

Furthermore, the respondents' answers emphasize that top management plays a crucial role in distributing necessary resources, including financial, technological, and human resources, to support the integration of sustainable

practices within the supply chain. Adequate resource allocation ensures that sustainability initiatives are possible and attainable, promoting their successful implementation and fostering an *enviropreneurial* culture (Namagembe et al. 2021). A respondent affirmed that his company:

“Emphasize the importance of environmental sustainability and communicate its expectations to all employees. By setting up a shared vision, we inspire our supply chain team to proactively seek eco-friendly solutions and constantly strive for improvements.”

Also, the top management’s role in promoting collaboration and communication was underscored by respondents. By encouraging cross-functional teamwork and open communication channels, top management facilitates the exchange of ideas and best practices related to sustainability. This collaborative environment encourages supply chain employees to contribute innovative solutions, fostering a culture of continuous improvement in environmental performance. One manager observed that the company’s vision:

“...stresses the need to balance business growth with environmental stewardship, and we ensure our supply chain employees are aligned with these values through continuous communication and training.”

Furthermore, the respondents’ answers highlight the significance of top management in recognizing and rewarding employees’ environmental initiatives. By implementing recognition and reward mechanisms, such as incentives or awards, top management reinforces the value of environmentally friendly behaviors. This recognition not only motivates supply chain employees but also signals the organization’s appreciation for their contributions to the *enviropreneurial* culture. This is clear in the submission of a respondent who advanced that:

“We reinforce it through regular recognition at team meetings and training sessions to ensure that our supply chain employees are aware of our expectations.”

According to the respondents, top management’s role in monitoring and evaluating sustainability initiatives is essential for ensuring progress and accountability. By setting up mechanisms to track the impact of eco-conscious practices and regularly evaluating performance against set goals, top management reinforces the organization’s commitment to environmental improvement. This continuous monitoring promotes transparency and accountability, contributing to the development of a sustainable and resilient *enviropreneurial* culture. As a respondent mentioned:

“By setting the right values, we cultivate a sense of purpose and responsibility among our supply chain team.”

What are the key components of an *enviropreneurial* culture and how do they contribute to supply chain sustainability in Nigerian manufacturing firms?

The research question aimed to uncover the fundamental components of an *enviropreneurial* culture and their role in driving supply chain sustainability within Nigerian manufacturing firms. The interviewees shed light on this inquiry, revealing three overarching themes: Innovation and collaboration, environmental awareness and responsibility, and adaptability and resilience. For instance, the interviewees consistently highlighted the pivotal role of innovation and collaboration within an *enviropreneurial* culture. This theme encompasses the fostering of a creative mindset that encourages the identification and implementation of eco-friendly solutions. The interviewees stressed that an environment that encourages innovative ideas and inventive approaches to sustainable practices drives continuous improvement and optimization within the supply chain operations. Collaboration appears as a fundamental element, with cross-functional teams working together to brainstorm, develop, and implement innovative solutions that reduce environmental impacts. This collaborative approach extends beyond the organization's boundaries, with the engagement of suppliers, partners, and even customers in the pursuit of sustainable supply chain practices (Masood et al., 2023). Innovation and collaboration, therefore, lead to the development of efficient processes, the reduction of waste, and the exploration of new, sustainable technologies that collectively enhance supply chain sustainability. One respondent noted that:

"We have defined our sustainability vision and values, and we consistently reinforce them through various channels such as team meetings, performance evaluations, and company-wide events. By setting clear expectations and highlighting the benefits of environmental consciousness, we inspire our supply chain employees to contribute towards our sustainability goals."

Another vital part found by the interviewees is the cultivation of environmental awareness and responsibility throughout the organization. This theme revolves around promoting a deep understanding of the ecological impact of supply chain activities. Interviewees emphasized the significance of instilling a sense of responsibility for the environment at all levels of the workforce. By raising awareness about the consequences of actions on the environment, employees are empowered to make conscious choices that contribute to sustainability (Glass et al., 2016). Moreover, interviewees underscored the importance of fostering a culture where individuals take ownership of their role in the supply chain's environmental footprint. This sense of responsibility extends to evaluating sourcing practices, waste reduction efforts, and energy-efficient processes. The integration of environmental considerations into performance evaluations and recognition mechanisms further reinforces this aspect of an *enviropreneurial* culture, motivating employees to align their actions with sustainability goals (Tseng et al., 2018). This can be seen in a respondent's opinion that:

“In today’s world, where environmental challenges are becoming increasingly urgent, every individual’s contribution matters.”

The third significant theme that appeared from the interviews is adaptability and resilience. An *enviropreneurial* culture, according to the interviewees, is one that is flexible and responsive to changing environmental and market dynamics. This theme emphasizes the need for supply chain practices that can adapt to evolving sustainability regulations, appearing technologies, and shifting consumer preferences. The interviewees highlighted that organizations that embrace change and proactively adjust their strategies prove a higher level of resilience in the face of environmental challenges. This adaptability involves being open to experimentation, learning from failures, and embracing course corrections to ensure that supply chain sustainability goals are still aligned with the broader business goals. This dynamic approach not only enhances the organization’s ability to navigate uncertainties but also positions it as a leader in the ever-changing landscape of sustainable business practices (Piyathanavong et al., 2019). This theme can be reinforced with the argument of a respondent who submitted that:

“We have developed a sustainability roadmap that outlines our long-term goals, and the actions required from our supply chain team. By aligning our vision with the employees’ day-to-day work, we create a sense of purpose and foster an enviropreneurial mindset throughout the organization.”

What challenges do Nigerian manufacturing firms face in developing an *enviropreneurial* culture among supply chain employees and promoting supply chain sustainability, and how can these challenges be overcome?

The respondents’ answers collectively highlight several key challenges that Nigerian manufacturing firms face in their endeavor to cultivate an *enviropreneurial* culture among supply chain employees and promote sustainability within the supply chain. These challenges encompass a lack of awareness and education and resistance to change and traditional practices. For instance, the challenge of lack of awareness and education pertains to a deficiency in understanding and appreciation of environmental sustainability and its implications within the supply chain. Respondents’ remarks show that some supply chain employees may not possess a comprehensive understanding of the importance of sustainability practices, their potential benefits, or the urgency to implement them. This lack of awareness can hinder the adoption of eco-conscious behaviors and inhibit a proactive approach toward sustainability initiatives. A respondent submitted that this is why:

“...we inspire our supply chain team to proactively seek eco-friendly solutions and constantly strive for improvements in our environmental performance.”

Similarly, the challenge of resistance to change and adherence to traditional

practices reflects the inherent resistance met when trying to introduce new, sustainable practices within established organizational routines. Respondents highlight that some employees, as well as existing organizational structures, may resist leaving familiar and conventional methods. Traditional practices deeply ingrained in the company culture can be difficult to uproot (Thomas et al., 2012), hindering the seamless integration of innovative and sustainable approaches. One respondent said to deal with this, his organization:

“...establish a strong commitment to environmental sustainability at all levels of our organization.”

How can Nigerian manufacturing firms measure the success of their *enviropreneurial* culture initiatives and supply chain sustainability practices, and what are the potential benefits of these practices to the firms and their stakeholders?

The respondents' answers provide valuable insights into how Nigerian manufacturing firms can measure the success of their *enviropreneurial* culture initiatives and supply chain sustainability practices. These insights shed light on the practical methods and strategic outcomes associated with fostering a culture of environmental consciousness within these firms. The respondents observed that key performance indicators (KPIs), stakeholder engagement and perception surveys and lifecycles analysis are ways manufacturing firms can measure the success of *enviropreneurial* culture initiatives.

The suggestion of using key performance indicators (KPIs) to measure the success of *enviropreneurial* culture initiatives and supply chain sustainability practices underscore the importance of quantifiable metrics. KPIs offer a structured approach to monitoring and evaluating various aspects of sustainability, including resource efficiency, waste reduction, emissions reduction, and energy consumption (Neri et al., 2021). By setting specific KPIs aligned with sustainability goals, Nigerian manufacturing firms can track their progress over time and objectively assess the impact of their initiatives. This approach will enable these firms to identify areas for improvement, make informed decisions, and demonstrate tangible outcomes to stakeholders. A respondent said:

“We measure all employees on quality, where having a disability will not necessarily be a disadvantage, but in relation to efficiency...we're extremely dependent on being efficient.”

In the same vein, engaging with stakeholders and conducting perception surveys is another avenue highlighted by the respondents. This approach recognizes the significance of understanding how the firm's sustainability efforts are perceived by various stakeholders, such as employees, customers, suppliers, and the local community (Olufemi, 2017). By actively seeking feedback and gauging stakeholders' perceptions, firms can gain insights into the effectiveness of their

enviropreneurial culture initiatives. Positive feedback may show alignment with stakeholder expectations, while areas of concern can inform refinements in strategies. Furthermore, stakeholders' perceptions can influence brand reputation and foster a positive relationship between the firm and its external environment. This was cemented with the submission of a respondent who stated that:

"By soliciting feedback from employees, suppliers, customers, and other stakeholders, we gain valuable insights into the effectiveness of our initiatives."

Also, the mention of lifecycle analysis underscores a comprehensive and holistic approach to assessing sustainability practices. Lifecycle analysis involves evaluating the environmental impacts of a product or process throughout its entire lifecycle, from raw material extraction to end-of-life disposal. By conducting such analyses, Nigerian manufacturing firms can identify 'hotspots' where environmental impacts are most significant. This approach helps firms prioritize interventions, improve processes, and make informed decisions to minimize their ecological footprint (Wang, Levis & Barlaz, 2021). Lifecycle analysis also offers a transparent view of the environmental implications associated with their supply chain activities, aiding in sustainable decision-making. A respondent noted that:

"We establish a strong commitment to environmental sustainability...Our vision statement reflects this commitment, and we reinforce it through...team meetings, and training sessions."

Overall, the findings emphasized the pivotal role of top management in fostering *enviropreneurial* culture among supply chain employees in manufacturing firms.

5. CONCLUSION AND RECOMMENDATIONS

This study highlights the critical roles played by top management in fostering environmental consciousness among supply chain employees in Nigerian manufacturing firms. The findings underscore the importance of top management's commitment, communication, and support in driving sustainable practices within the supply chain for it to reduce its carbon footprints. The identified strategies and practices can serve as a blueprint for manufacturing firms in Nigeria and beyond, emphasizing the need for top management to play an active role in promoting environmental consciousness within their organizations. By doing so, manufacturing firms can contribute to environmental sustainability while enhancing their overall performance and reputation. The study therefore recommends that: Manufacturing firms should integrate sustainability goals into the company's vision, mission, and strategic goals and top management should lead by example, proving their dedication to sustainable practices and communicating the importance of environmental consciousness to all employees. Secondly, manufacturing firms should set up robust communication channels to issue information, share best practices, and create

awareness of sustainability initiatives. Regular communication, such as newsletters, intranet portals, and team meetings, should be used to keep employees informed and engaged in environmental efforts. Thirdly, manufacturing firms should distribute adequate resources and support systems. This includes investing in eco-friendly technologies, providing training programs, and distributing dedicated personnel or sustainability teams. By equipping employees with the necessary resources and support, firms can empower them to actively contribute to environmental consciousness within the supply chain. Manufacturing firms should integrate environmental performance metrics into performance evaluation and incentive systems. By aligning individual and team goals with sustainability goals, employees will be motivated to prioritize environmental consciousness in their day-to-day activities. Recognition and rewards should be given to employees who excel in sustainability initiatives, fostering a culture of environmental responsibility.

This study has contributed theoretically by highlighting the pivotal role of top management in fostering environmental consciousness within supply chains. This emphasizes the importance of leadership commitment and influence in shaping sustainable practices, adding to the existing literature on organizational sustainability and management's role. Also, the study contributes to theoretical understanding of how sustainability goals can be integrated into a company's vision, mission, and strategic goals. This study advanced the position of the theory of reasoned action (Fishbein, 1979) by noting that, supply chain employees become environmentally conscious based on the sense-making and control mechanism (culture) created by top management to guide, shape and encourage eco-friendly attitudes and behavior in the organization. It underscores that sustainability should be a core part of a firm's strategic framework, aligning environmental efforts with overall business goals. On the other hand, the study provides practical insights for manufacturing firms, not only in Nigeria but globally, by offering a blueprint for fostering environmental consciousness within supply chains. The identified strategies offer actionable steps that firms can follow to drive sustainable practices effectively. In the same vein, the study offers clear guidelines for top management to actively promote environmental consciousness. The recommendations, such as leading by example and communicating the importance of sustainability, offer practical guidance for managers to influence organizational culture positively.

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