

Entrepreneurial Environmental Uncertainty and Investment Decision-Making in Nigeria's Plastic Manufacturing Sector

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Abstract

This study investigates the impact of environmental uncertainty on investment decision-making among entrepreneurs in Nigeria's plastic manufacturing sector, a vital component of the nation's economy. The research addresses three core questions: the primary sources of environmental uncertainty faced by entrepreneurs, the implications of these uncertainties on investment strategies, and the risk management strategies employed to mitigate their effects. Environmental uncertainty encompasses various factors, including volatile economic conditions, regulatory changes, fluctuating raw material prices, and technological disruptions. These uncertainties complicate the investment landscape, often leading entrepreneurs to adopt more conservative strategies to minimize risks. Through a comprehensive literature review and analysis of current practices, the study identifies key dimensions of environmental uncertainty, such as state, effect, and response uncertainty, which significantly influence entrepreneurs' decision-making processes. The findings reveal that many entrepreneurs prioritize short-term gains over long-term investments due to heightened risk perceptions in an unpredictable environment. Additionally, the study highlights the critical role of innovation and resilience as essential components for navigating these challenges. To enhance sustainability and growth within the sector, the research offers recommendations, including the establishment of supportive networks, improved access to reliable information, and the promotion of adaptive strategies. By fostering an environment conducive to innovation and collaboration, stakeholders can help entrepreneurs better manage environmental uncertainties, ultimately strengthening the plastic manufacturing industry's contribution to Nigeria's economic development. This study aims to contribute to the broader understanding of entrepreneurial dynamics in uncertain environments, offering insights that can guide policy and practice in the sector.

Keywords: *Entrepreneurial Uncertainty, Investment Decision-Making, Plastic Manufacturing Sector, Nigeria, Risk Mitigation*

Introduction

Entrepreneurship in developing economies like Nigeria is often marked by significant uncertainty, particularly in sectors such as plastic manufacturing. The volatile nature of Nigeria's economy presents substantial challenges for entrepreneurs, especially in making strategic investment decisions. Understanding how environmental uncertainties shape investment decision-making is key to fostering growth and stability within the plastic manufacturing sector (Kehinde et al., 2020). Environmental uncertainty in business refers to external factors that are unpredictable and beyond a firm's control. In Nigeria's plastic manufacturing sector, uncertainties are driven by economic volatility, regulatory unpredictability, supply chain disruptions, and technological advancements (Ewuzie et al., 2023). Entrepreneurs must navigate these challenges, often making investment decisions without clear visibility into future market conditions. The ability to anticipate and adapt to these uncertainties is essential for long-term sustainability and profitability (Ribeiro, Lacerda & Becker, 2023).

Economic instability is a major source of uncertainty in Nigeria's plastic manufacturing industry, with the sector influenced by fluctuating exchange rates, inflation, and inconsistent government policies. Nigeria's oil-dependent economy experiences periodic downturns, leading to unpredictable demand for goods, including plastics (Orji & Ezeanyaeji, 2023). Currency devaluation and inflation further complicate forecasting production costs and revenues. Moreover, Nigeria's regulatory environment is often erratic, with sudden shifts in import tariffs, environmental regulations, and tax policies (Asaleye et al., 2021).

Supply chain disruptions add further challenges. Nigeria's infrastructure, characterized by poor roads, unreliable power supply, and inefficient ports, leads to delays and increased costs for raw materials (Oguche, 2023). Global supply chain disruptions, heightened by international market dynamics, compound these issues. For instance, the COVID-19 pandemic exposed the vulnerabilities in Nigeria's manufacturing sector, as global shortages and import restrictions severely constrained production capacity (Orji & Ezeanyaeji, 2023).

Technological advancements present both opportunities and uncertainties for the sector. While new technologies can enhance efficiency, they introduce uncertainty as entrepreneurs must decide whether to invest in expensive upgrades amidst unpredictable market conditions (Sun, 2020). The push for sustainable practices further complicates investment decisions, as businesses weigh the costs and benefits of adopting environmentally friendly technologies.

These environmental uncertainties significantly affect investment decision-making. Entrepreneurs facing high uncertainty often adopt risk-averse strategies, delaying or scaling down investments. Economic volatility, for example, may lead to reduced capital expenditures or production expansion, even when market demand exists. Similarly, inconsistent regulatory frameworks can deter foreign direct investment, limiting growth opportunities in the sector (Shaukat et al., 2019). Supply chain uncertainties also result in higher operating costs, forcing entrepreneurs to focus on short-term investments over long-term planning. Unpredictable raw material availability and fluctuating logistics costs make accurate financial projections difficult (Mangal & Gupta, 2015). As a result, many entrepreneurs prioritize liquidity over committing to large-scale technology or infrastructure investments.

To navigate these challenges, entrepreneurs can adopt strategies such as diversifying supply chains both geographically and across suppliers to mitigate local disruptions (Wang, Zhou & Zhao, 2023). Forming strategic partnerships with international suppliers and utilizing digital technologies for supply chain optimization are also effective ways to reduce external risks. Additionally, engaging in industry associations and lobbying efforts can help mitigate regulatory uncertainty (Chalmers & Malik, 2021). Proactively adopting environmentally friendly practices can provide a competitive edge and reduce future compliance costs. Entrepreneurs can also maintain liquidity during economic uncertainty by building relationships with financial institutions and exploring alternative financing options like venture capital and crowdfunding (Bonini, Capizzi & Cumming, 2019). In conclusion, while environmental uncertainties pose significant challenges to Nigeria's plastic manufacturing sector, they are manageable. With strategic planning, adaptability, and proactive responses, entrepreneurs can mitigate these risks and promote sustainable growth. Understanding the sources of uncertainty and their impact on investment decision-making is crucial to developing strategies that enhance resilience and competitiveness in this important sector.

Literature Review

Conceptual Framework

Environmental Uncertainty in the Manufacturing Sector

The complexity and unpredictability of changes in external elements that have an impact on business operations are referred to as environmental uncertainty. The aforementioned elements may encompass market volatility, technical breakthroughs, regulatory frameworks, and economic conditions. In the industrial sector, environmental uncertainty generally originates from fluctuating markets, regulatory changes, supply chain interruptions, and environmental laws (Muriithi, Sammy & Shalle, 2021). Businesses face difficulties as a result of this unpredictability, especially in emerging nations like Nigeria where uncertain political and economic environments greatly increase uncertainty (Salisu, Salisu & Salisu, 2023).

Jahanshahi & Brem (2020) divide environmental uncertainty into three primary categories: response uncertainty, state uncertainty, and effect uncertainty. When managers are unable to foresee outside events, like changes in the demand for their products or in governmental regulations, state uncertainty results. The inability to predict how these external developments can affect company operations is known as "effect uncertainty." The inability to decide on the best course of action to take in response to outside developments is known as reaction uncertainty (Choi et al., 2021).

Factors including frequent regulatory changes, changing raw material prices, and irregular energy supplies exacerbate environmental uncertainty in Nigeria's plastic manufacturing industry. Environmental laws on plastic manufacture and disposal have become more stringent due to the global push towards sustainability (Silva et al., 2021). That makes these difficulties even more daunting. Businesses in the industry face an unpredictable environment due to the Nigerian

government's legislative framework surrounding the handling of plastic trash and the demand from around the world to implement environmentally friendly practices (Egeruoh-Adindu, 2023). Due to the fact that environmental uncertainty affects how entrepreneurs make decisions, it is imperative that they comprehend the various aspects of this uncertainty.

According to recent study, political unpredictability, corruption, and poor infrastructure in Nigeria frequently provide manufacturing companies with new difficulties on top of the existing high levels of environmental uncertainty (Solaja, 2022). As organizations struggle with these external difficulties, they are obliged to create adaptive methods to survive in the face of uncertainty. For instance, entrepreneurs in the plastics manufacturing sector frequently need to adjust their company plans to conform to shifting consumer tastes and environmental requirements (Hurmelinna-Laukkanen, Pauku&Taskila, 2021).

Entrepreneurs' strategic decisions are significantly influenced by environmental uncertainty, especially in the manufacturing sector. It affects not just their capability for long-term planning but also their ability to keep a competitive edge in an unstable economy.

Entrepreneurial Investment Decision-Making

Investment decision-making is a basic process in entrepreneurship, comprising the allocation of resources to various initiatives, businesses, or assets with the hope of earning profits. Investment decisions grow riskier and more complicated when faced with environmental uncertainty (Bretschger&Soretz, 2018). When making investment selections, entrepreneurs need to pay close attention to technology breakthroughs, legal frameworks, and market situations. According to research by Bretschger&Soretz (2018), entrepreneurs typically employ more conservative investment methods in order to reduce their exposure to risk in uncertain situations.

Making investment decisions in Nigeria's plastic manufacturing industry is particularly difficult because of shifting government policies, unstable raw material pricing, and varying demand. Nwajiaku, Esan, and Ananwude (2020) claim that because of high interest rates and onerous lending requirements imposed by financial institutions, entrepreneurs in Nigeria frequently struggle to acquire capital for their enterprises. Many entrepreneurs are unable to grow their companies or make investments in innovation because of this financial limitation, which leads them to rely on personal resources or unofficial lending networks.

Entrepreneurs' perceptions of risk and uncertainty also play a role in their decision-making. Entrepreneurs' willingness to explore certain types of ventures is largely determined by their level of risk tolerance. Risk-tolerant businesspeople might be more inclined to fund high-risk, high-reward endeavors, whereas risk-averse businesspeople might prefer to invest in low-risk endeavors with predictable returns (Ullah et al., 2023). Given the high level of environmental uncertainty in Nigeria, business owners may choose to make more cautious choices when making investments, giving short-term profits precedence over long-term strategic plans (Kort et al., 2021).

According to Cassar (2006), entrepreneurs' decision-making processes about investments are greatly influenced by their past experiences and expertise. People who have dealt with uncertainty in the past are more likely to make wise choices and use risk-reduction tactics. Entrepreneurs in Nigeria's plastic manufacturing industry that have previously handled supply chain disruptions or navigated regulatory changes are better able to make wise investment decisions in the face of environmental uncertainty (Valeva, Hewitt & Thomas, 2020).

Information accessibility also has an impact on how entrepreneurs make decisions. Information asymmetry can make it difficult for entrepreneurs to make wise investment decisions in unpredictable conditions. The significance of dependable market data, governmental regulations, and industry developments in directing investment choices is underscored by Sachdeva et al. (2022). This problem is made more difficult for entrepreneurs in Nigeria by the opaqueness of market data and regulatory laws, which makes it hard for them to accurately determine the risks involved in the investments they make (Oguejiofor et al., 2020).

Making investment decisions in entrepreneurial endeavors is a complex process that is impacted by a variety of factors, including information availability, risk tolerance, past experience, and environmental uncertainty. In order to make wise investment choices that would secure the longevity of their companies, entrepreneurs in Nigeria's plastic manufacturing industry must negotiate these complications.

Entrepreneurial Risk Management Strategies

Entrepreneurs analyze, evaluate, and reduce any risks that could negatively impact their firms through the process of risk management. Effective risk management techniques are essential to the survival and expansion of entrepreneurial endeavors in uncertain circumstances. Many risks, such as supply chain interruptions, regulatory changes, and market fluctuations, are faced by entrepreneurs in the manufacturing sector, especially in Nigeria (Odey & Willie, 2023). To protect their investments, these risks call for the implementation of proactive risk management techniques.

Diversification is a frequent risk management tactic used by business owners. According to Buchner, Mohamed, and Schwiendbacher (2017), diversification is the process of distributing investments among several businesses or assets in order to minimize exposure to a single source of risk. To reduce the risks associated with shifting raw material prices or modifications to government rules, entrepreneurs in Nigeria's plastic manufacturing industry, for instance, may decide to diversify their product lines or make investments in other industries (Dauda, Namusonge & Nyang'au, 2023). Through diversification, business owners can spread their risk and improve their odds of surviving in an unpredictable economy.

Flexibility is a vital component of risk management techniques. The ability of entrepreneurs to quickly adjust to changes in the external environment is referred to as flexibility. Businesses that can pivot or modify their operations in response to changes in the market or in regulations have a higher chance of success in unpredictable settings (Dheer & Lenartowicz, 2019). Entrepreneurs in

Nigeria's plastic manufacturing industry may implement adaptable supply chain management techniques or flexible production methods in response to shifts in consumer demand or governmental requirements (Adebayo, 2018).

Innovation serves as a risk management strategy for entrepreneurs as well. Businesses can use innovation to develop new goods, procedures, or services that set them apart from rivals and giving them an edge over rivals in unstable markets (Fabrizio et al., 2021). Innovation in the production process or the creation of environmentally friendly plastic substitutes can assist companies in Nigeria's plastic manufacturing industry in adhering to environmental laws and drawing in environmentally conscientious customers (Nyakuma&Ivase, 2021).

Additionally, information accessibility is essential to risk management. Entrepreneurs are better able to foresee and manage risks when they have access to timely and reliable information about industry trends, regulatory changes, and market circumstances. Yet, in Nigeria, entrepreneurs frequently find it challenging to evaluate the risks connected to their business operations due to a lack of openness and the unavailability of trustworthy data (Oguejiofor et al., 2023). In order to address this difficulty, business owners might create networks with governmental organizations, trade associations, and other relevant parties in order to obtain important data and insights.

Managing the obstacles presented by environmental unpredictability requires the application of entrepreneurial risk management principles like flexibility, innovation, diversity, and information availability. In order to secure the long-term viability of their companies, entrepreneurs in Nigeria's plastic manufacturing industry need to implement these tactics in order to reduce the risks brought on by shifting market conditions and legislative modifications.

Impact of Environmental Uncertainty on Entrepreneurial Investment

Understanding the difficulties faced by entrepreneurs in unstable business settings requires an understanding of the influence of environmental uncertainty on entrepreneurial investment decisions. Entrepreneurs' assessment of investment prospects, resource allocation, and risk management can be profoundly impacted by environmental unpredictability (Singh, 2020). Entrepreneurs operating in uncertain contexts need to weigh the possible risks posed by variables such shifting market conditions, shifting regulations, and technology disruptions, all of which might affect their capacity to make wise investment decisions (Wijaya, 2023).

The impact of environmental uncertainty on risk perception is a significant aspect in which it affects investments. According to Jahanshahi and Brem (2020), entrepreneurs have a tendency to evaluate investment opportunities by considering the possible risks and benefits. Additionally, uncertainty in the environment can amplify the impression of risk. As a result of this elevated impression, entrepreneurs frequently make more cautious decisions in an effort to reduce their risk of losing money. In order to minimize risk exposure, entrepreneurs working in uncertain circumstances may choose to postpone investments or make smaller, incremental ones, according to research by Li & Ahlstrom (2020).

Environmental instability poses special difficulties for Nigeria's plastic manufacturing industry, which have an immediate impact on investment choices. An climate that is insecure for entrepreneurs is created by the instability of government rules, fluctuating energy costs, and raw material prices (Kong & Qin, 2021). For example, because the production of plastic is primarily dependent on petrochemical inputs, manufacturers may experience abrupt increases in production costs as a result of global swings in oil prices. Entrepreneurs may be discouraged from making large, long-term investments in their business because of this uncertainty (Handri et al., 2021).

Regulation uncertainty can also have a significant effect on the investment decisions made by entrepreneurs, such as modifications to import/export laws or environmental rules (Zhou et al., 2024). In Nigeria's plastic manufacturing sector, new government initiatives to cut plastic waste have put producers under more regulatory scrutiny and compelled them to invest in new equipment and methods in order to meet environmental regulations. Since future rules may make huge capital expenditures outdated, entrepreneurs may be reluctant to commit to such investments due to the regulatory uncertainty (Samir, 2023).

Furthermore, investment decisions' time horizons might be impacted by environmental uncertainty. It is possible for entrepreneurs to decide that short-term investments that yield quick profits are more important than long-term ones that are more uncertain (Kort et al., 2021). Due to their potential reluctance to engage in R&D or new technologies that could give them a competitive edge in the future, entrepreneurs with a short-term focus may impede innovation and long-term success. But according to research, some business owners might take a more proactive stance toward handling uncertainty by spreading their product lines or making investments in adaptable manufacturing techniques to lessen the effects of environmental changes (Mishra & Mishra, 2019).

In conclusion, environmental uncertainty affects regulatory compliance, investment time horizons, and risk perception, all of which have a substantial impact on entrepreneurial investment decisions. Entrepreneurs in Nigeria's plastic manufacturing industry need to use risk management techniques that strike a balance between immediate profit and long-term sustainability in order to overcome these obstacles.

Entrepreneurial Innovation and Uncertainty Management

Innovation is essential to an entrepreneur's ability to manage uncertainty, especially in dynamic and unpredictable situations. According to Namal et al. (2023), entrepreneurial innovation is the creation and use of new goods, procedures, or business models that help companies adjust to changes in the external environment. Innovation helps business owners stay competitive, lower operational risks, and seize new opportunities when faced with uncertain environmental conditions (Jahanshahi & Brem, 2020).

Many times, innovation is seen as a calculated reaction to unpredictability in the environment. Goel & Nelson (2021) assert that innovation gives businesses the means to adapt to shifts in consumer demand, technology improvements, and governmental regulations. This helps

businesses handle uncertainty. Innovative entrepreneurs are better able to foresee changes in the business environment and modify their plans accordingly. This capacity for adaptation is especially crucial in fields with a lot of unpredictability, like Nigeria's plastic manufacturing sector (Akpan, Johnny & Sylva, 2021).

The necessity to adapt to shifting consumer demands and environmental restrictions is driving innovation in Nigeria's plastic manufacturing industry. The development of environmentally friendly plastic substitutes that are less damaging to the environment, like biodegradable plastics and recycled materials, is a result of the worldwide movement toward sustainability (Cruz et al., 2022). In order to reduce the risks brought on by more stringent environmental rules and establish themselves as leaders in the developing green economy, business owners in this industry are making use of these advances.

Operational uncertainty can also be managed through innovation. For instance, to lessen their dependency on erratic raw material supplies and labor costs, business owners in the plastic manufacturing industry may implement cutting-edge production strategies like automation or lean manufacturing (Jahanshahi & Brem, 2020). Entrepreneurs can lessen the effect of outside interruptions on their operations and preserve a competitive advantage in the market by streamlining their production processes (Berk, Ayas & Ülkü, 2023).

Entrepreneurs may better handle supply chain volatility with the use of technology innovation. Supply chain interruptions may significantly affect the functioning of businesses in unpredictable situations. According to Talpur et al. (2023), entrepreneurs may enhance the transparency and robustness of their supply chains by investing in digital technologies like blockchain and artificial intelligence. This will enable them to effectively manage risks associated with variable material costs and schedule delays. With the help of these technical advancements, business owners can adapt quickly to shifts in the outside world and keep their operations running smoothly.

Guo's (2019) research also emphasizes the significance of effectuation in innovation. The process through which entrepreneurs use their networks and available resources to reduce uncertainty and create new opportunities is known as "effectuation." Entrepreneurs in the plastic manufacturing industry can leverage effective thinking to create novel goods or services, like biodegradable packaging or recycled plastic materials, that cater to the needs of developing markets (Dantas et al., 2022). Instead of attempting to forecast the future, entrepreneurs should concentrate on what they can control. This will allow them to think creatively and develop solutions that lower the risks brought on by environmental unpredictability.

Entrepreneurial Resilience and Performance

The ability of entrepreneurs to endure, adjust, and bounce back from challenging circumstances, like market volatility, regulatory obstacles, and economic downturns, is known as entrepreneurial resilience. The long-term viability and durability of entrepreneurial endeavors are significantly influenced by resilience, especially in settings with elevated degrees of unpredictability (Shan &

Tian, 2022). Resilient entrepreneurs are better able to overcome obstacles, ensure business continuity, and produce consistent results in unpredictable circumstances (Elshaer & Saad, 2021).

According to Jahanshahi and Brem (2020), resilience is frequently understood as a dynamic characteristic that enables entrepreneurs to react to and recover from shocks in the external environment. This capacity is especially crucial in Nigeria's plastic manufacturing industry, as business owners deal with a variety of difficulties like variable material prices, erratic energy supplies, and regular regulatory changes (Garba, 2020). Resilient entrepreneurs are better equipped to handle these difficulties and carry on running their companies in the face of adversity (Cruz et al., 2022).

Adaptability is one of the main elements of entrepreneurial resilience. According to Castro and Zermeño (2020), entrepreneurs who possess adaptability are capable of modifying their business strategy, processes, and goods to suit evolving external circumstances. For instance, business owners in the plastic manufacturing industry could have to modify their production procedures to abide by new environmental laws or change the products they offer to satisfy evolving consumer needs for environmentally friendly packaging options (Akpan, Johnny & Sylva, 2021). Entrepreneurs that possess adaptability are able to be sensitive and adaptable, which guarantees the success of their companies even in unpredictable circumstances.

The capacity to use resources and networks to overcome obstacles is a crucial component of resilience (Zhang et al., 2020). Strong social and professional networks enable entrepreneurs to access important resources including capital, knowledge, and specialized knowledge. Resilient businesspeople in Nigeria's plastic manufacturing industry, where access to capital is frequently scarce, may rely on their networks to find new finance sources or learn about market trends (Dauda, Namusonge & Nyang'au, 2023). These networks give the entrepreneur a safety net that improves their capacity to absorb shocks from the outside world and bounce back.

Performance as an entrepreneur is also closely associated with resilience. According to Santoro et al. (2020) research, resilient entrepreneurs have a higher chance of long-term success and sustained performance. Resilient entrepreneurs are able to keep their operations running well in unpredictable times, which lets them take advantage of opportunities and minimize the damage that comes from outside interruptions. Resilient businesspeople have a higher chance of surviving market instability, supply chain interruptions, and regulatory changes in Nigeria's plastic manufacturing industry, which would ensure their companies' continuous expansion and success (Ibidunni et al., 2022).

Additionally, resilient entrepreneurs are more likely to innovate, and this leads to better company outcomes. In order to navigate uncertainty and preserve a competitive edge, resilient entrepreneurs are more likely to take part in innovative endeavors like creating new goods or implementing new technology (Cruz et al., 2022). Resilient business owners may guarantee the long-term viability of their companies in a dynamic market by cultivating an innovative culture. To sum up, the ability of entrepreneurs to withstand uncertainty plays a crucial role in deciding how well their businesses

function and remain viable in uncertain times. Entrepreneurs in Nigeria's plastic manufacturing industry that exhibit resilience through innovation, network utilization, and adaptation will be in a better position to overcome external obstacles and succeed in the long run.

Empirical Studies

In Nigeria's industrial sector, Han, Yue, and He (2023) looked into how environmental uncertainty affected entrepreneurial decision-making. According to their research, supply chain disruptions, shifting regulations, and volatile market conditions pose serious obstacles for entrepreneurs and have an immediate effect on their investment strategy. The writers stressed that in order for entrepreneurs to successfully navigate their business environments, they must have a thorough awareness of these uncertainties. The study's sample size was constrained to a few significant areas, though, which would limit how broadly applicable its conclusions are to the whole nation. Cruz et al.'s (2022) investigation of the connection between environmental instability and entrepreneurial innovation concentrated on the ways in which Nigerian entrepreneurs can use innovation as a coping strategy. The ability to manage environmental uncertainties and the adoption of innovative methods were found to be strongly positively correlated by the study. Entrepreneurs that embraced process advances and technology breakthroughs were better able to adjust to changing conditions and reduce risks. However, the study did not investigate the particular kinds of inventions that worked best, suggesting a knowledge vacuum regarding the subtleties of creativity in the face of uncertainty.

The importance of entrepreneurial resilience in sustaining firm performance in the face of environmental difficulties was examined by Berk, Ayas, and Ülku in 2023. The study, which made use of a thorough survey of SMEs, discovered that resilient business owners had a greater chance of continuing their operations in the face of uncertainty, which had a substantial effect on their overall performance. These entrepreneurs were able to withstand external shocks because of their resilience, which was associated with adaptation and efficient resource use. Future research may need to include more objective assessments as the study's reliance on self-reported resilience measures may introduce biases.

Risk management techniques are crucial instruments for maintaining investment decisions, according to Jahanshahi & Brem's (2020) investigation on the tactics used by business owners to lessen the effects of environmental uncertainty. The results showed that proactive risk management approaches, like flexible production methods and diversification, improved investment returns for business owners. The study highlighted a possible subject for more research even though it offered insightful information about realistic tactics but neglected to discuss the strategies' long-term effects on company expansion.

Using a sizable sample size and statistical analysis, Oghene & Amah (2023) investigated the impacts of psychological support and knowledge exchange on SMEs in Rivers State. Their findings suggested a good correlation between growth and information sharing, but the detrimental effect of psychological support on growth begs for more investigation. However, the validity of the study's conclusions is called into question due to its reliance on a small response rate.

In a similar vein, Dileo & Pereiro (2018) looked at contextual elements that affect the growth of entrepreneurship and found that socioeconomic conditions are essential for success. Although their

results highlight the significance of outside influences, they fell short in addressing the impact of mentoring and knowledge transfer, pointing to a vacuum in the research.

By highlighting the interaction of contextual elements, risk management techniques, entrepreneurial innovation, resilience, and environmental unpredictability, these studies collectively highlight the complex nature of entrepreneurship in Nigeria. In order to provide a comprehensive understanding of the factors impacting entrepreneurship growth in Nigeria's plastic manufacturing industry, a more thorough investigation that incorporates these elements is needed, as the literature currently in publication emphasizes. In addition to investigating novel approaches for cultivating a strong entrepreneurial environment in the face of uncertainty, future study should aim to address the shortcomings noted in earlier studies.

Theoretical Framework.

The theoretical underpinnings of this work are presented in this section. Contingency Theory serves as the foundation for our investigation. According to this theory, an organization's ability to make successful decisions rests on how well its internal strategies and the external environment mesh. More specifically, it implies that decision-making procedures need to be adaptable and flexible to different degrees of uncertainty in the business environment when it comes to entrepreneurial environmental uncertainty.

The external environment that impacts Nigeria's plastic manufacturing industry is marked by socio-political dynamics, regulatory changes, economic instability, and fluctuating raw material costs. All of these factors lead to unpredictability. According to contingency theory, in order for businesses to properly handle this uncertainty, their investment plans must be modified. It emphasizes that there is no "one best way" to choose an investment strategy; rather, the most effective course of action is determined by the environmental factors and the firm's capacity for adaptation.

In light of contingency theory, Lee & Keramati (2017) contend that companies with high levels of uncertainty need to be flexible in their decision-making processes. Businesses in Nigeria's plastic manufacturing industry must be flexible in their investment choices since they are particularly vulnerable to changes in legislation, fluctuations in foreign exchange, and market instability. This implies that risk-mitigation methods are frequently given priority by decision-makers above those that maximize short-term gains.

By suggesting that businesses may see investment decisions as "options" rather than commitments in the face of environmental uncertainty, real options theory enhances contingency theory. In response to outside circumstances, this approach supports strategic flexibility, enabling companies to postpone or reduce investments. In Nigeria, businesses that manufacture plastics can choose to scale back operations when market circumstances improve or postpone significant investments during periods of high economic volatility.

According to Khachatryan (2021), the manufacturing sector serves as evidence that the ability to adjust to external changes has a significant impact on entrepreneurial performance in unpredictable circumstances. Similar to this, Nigerian plastic producers base their investment choices on external indicators like market dynamics and governmental laws as they attempt to strike a balance between opportunity and risk in unsteady circumstances. By tying entrepreneurial environmental

uncertainty to strategic investment decision-making within the Nigerian plastic manufacturing industry, this theoretical framework directs the research.

Research Methodology

The present research used a conceptual review methodology to examine the impact of environmental uncertainty on the investment decisions made by entrepreneurs in Nigeria's plastic manufacturing industry. It critically evaluates the body of research on the variables influencing risk management techniques, resilience, and entrepreneurial innovation in the context of Nigeria's industrial sector. Providing a thorough grasp of these dynamics and how they interact to support the sector's growth and sustainability is the aim. The study uses both primary and secondary data from a wide variety of literature sources. Industry reports from the plastic manufacturing community in Nigeria are primary sources. Academic journal articles, books, conference papers, newspapers, online publications, and reliable internet resources are examples of secondary sources that address innovation, environmental uncertainty, and entrepreneurial practices as they apply to small and medium-sized enterprises (SMEs) in Nigeria.

Results

Sources of Environmental Uncertainty in Nigeria's Plastic Manufacturing Sector

The plastic manufacturing industry in Nigeria is characterized by an environment that poses major challenges to entrepreneurs, having a substantial impact on their operations and investment decisions. Numerous reasons, including supply chain interruptions, legislative changes, economic situations, and technological improvements, are the main causes of these uncertainty.

Economic Conditions

The unpredictable nature of Nigeria's economy poses difficulties for business owners in the plastics manufacturing sector. Variations in the demand for plastic items are frequently associated with more general economic trends, like depreciation of currency and inflation. Dantas et al. (2022) claim that because customer demand is inconsistent, sales volumes might also be unexpected, forcing manufacturers to often modify their production levels. In addition to having an impact on profitability, this kind of economic volatility makes it more difficult for business owners to make long-term investment plans. Additionally, high interest rates and strict lending requirements from financial institutions make it more difficult to obtain funding, which is still a major concern given the uncertainty surrounding the economy (Nakiwala, Mukiibi&Kigundu, 2023).

Regulatory Changes

The uncertainty encountered by entrepreneurs in Nigeria's plastic manufacturing sector is further compounded by the frequent changes in government policy and environmental laws. In an effort to decrease plastic waste and promote sustainability, the Nigerian government has been enforcing

stricter environmental regulations (Kehinde et al., 2020). Manufacturers may find it difficult to comply with these regulations, nevertheless, since they are frequently ambiguous and unpredictable. Entrepreneurs may be discouraged from making large investments due to the uncertainty around potential future laws, fearing that new standards may make outdated technologies or processes (Jiang et al., 2022). Because of the constantly changing regulatory landscape, entrepreneurs must continue to be flexible in order to balance operational expenses and comply with new regulations.

Supply Chain Disruptions

Another significant cause of environmental uncertainty is the unpredictable availability of energy and raw materials. Petrochemical inputs, whose costs are impacted by changes in the world market, are crucial to the production of plastics (Ghaithan et al., 2021). Moreover, supply chain interruptions brought on by inadequate infrastructure or unstable political environments might make it more difficult to obtain necessary goods on time. Resource acquisition often leaves entrepreneurs in a tumultuous situation, which can impede output and raise overhead. Grainger & Zhang (2019) claim that the difficulty manufacturers have in sustaining steady production levels is exacerbated by the unreliable electricity supply. The cumulative impact of these supply chain interruptions pushes business owners to take on reactive tactics, which might not always be in line with long-term objectives.

Technological Advancements

Entrepreneurs in Nigeria's plastic manufacturing industry have both opportunities and challenges due to the swift advancements in technology. Technological developments can result in more productivity and better products, but they also call for constant adaptation (Lal et al., 2023). In order to comply with new rules or improve their manufacturing processes, entrepreneurs need to stay up to date on evolving technologies. However, manufacturers may find it challenging to decide which technologies to invest in due to the ambiguity around which ones will win out. According to Alshebami (2023), as industry standards change in response to regulatory demands and consumer demand, entrepreneurs who don't innovate may find themselves at a competitive disadvantage.

For entrepreneurs in Nigeria's plastic manufacturing industry, environmental uncertainties brought about by shifting economic conditions, regulatory changes, supply chain disruptions, and technology improvements present serious obstacles. In order to achieve sustainability and growth, entrepreneurs must negotiate an unpredictable landscape, which calls for a proactive approach to risk management and strategic planning.

Impact of Environmental Uncertainty on Investment Decision-Making in Nigeria's Plastic Manufacturing Sector

Environmental uncertainty significantly influences investment decision-making among entrepreneurs in Nigeria's plastic manufacturing sector. This uncertainty heightens the perception of risk, prompting entrepreneurs to adopt more conservative investment strategies. The consequences of this cautious approach can be detrimental, hindering innovation and long-term growth.

Adoption of Conservative Investment Strategies

The propensity of entrepreneurs to prefer smaller, incremental investments over large-scale capital expenditures is one of the main effects of environmental uncertainty. Botoroga, Horobet, and Belaşcu (2021) state that this kind of approach is frequently used to reduce possible losses that could result from erratic market conditions. For instance, instead of pursuing significant new initiatives, entrepreneurs may decide to spend in little repairs or maintenance when faced with erratic economic conditions and changing demand for plastic products. Their ability to modernize facilities or scale operations is restricted by this conservative strategy, which eventually stalls growth.

Prioritization of Short-Term Gains

Entrepreneurs that emphasize short-term gains above long-term strategic investments do so because they are focused on minimizing risks. Studies show that companies become risk averse and choose projects with quick payoffs while operating in highly unpredictable conditions (Qazi, Dikmen&Birgonul, 2020). For example, instead of funding research and development that could lead to innovation, business owners might decide to invest in projects with a quick payoff that improve cash flow. This lack of foresight might hinder the creation of novel goods or procedures, making producers more susceptible to rivals who are prepared to take calculated chances in the name of innovation.

Regulatory Uncertainties and Capital Expenditures

The difficulties entrepreneurs encounter when choosing investments are exacerbated by regulatory uncertainties. Significant capital investments may be discouraged in Nigeria due to the unpredictable environment created by the government's dynamic policies surrounding environmental rules (Ozuzu&Isukul, 2021). Entrepreneurs frequently worry that new laws may make their investments unprofitable or necessitate expensive modifications in order to comply with new requirements. Because of this, a lot of people decide to postpone or reduce their intended investments in favor of waiting it out. Akinwale (2020) posits that a reluctance to allocate funds towards infrastructure or technological upgrades may lead to the loss of potential growth and competitive advantages.

Entrepreneurs in Nigeria's plastic manufacturing industry make significant investment decisions in response to environmental uncertainty. Increased risk aversion results in cautious investment approaches, an emphasis on quick profits, and a reluctance to make large capital commitments. All of these things work against growth and innovation, which highlights the need for a more predictable and stable corporate environment that promotes long-term investment.

Strategies for Mitigating Environmental Uncertainty in Nigeria's Plastic Manufacturing Sector

Significant environmental uncertainty affects Nigerian plastic manufacturing industry entrepreneurs' ability to make decisions about investments and the performance of their businesses as a whole. A variety of techniques can be used to reduce uncertainty and increase resilience in order to successfully manage these issues. Information access, adaptability, creativity, and diversification are the main tactics.

Diversification of Investments

Diversification is a good way to manage environmental uncertainties. Entrepreneurs can considerably lower their risk exposure by distributing their investments among several businesses or product lines. By offsetting possible losses in one sector with profits in another, diversity, as mentioned by Wang & Liu (2023), enables organizations to lessen the consequences of market volatility. To mitigate the impact of variations in the market for traditional plastic products, a plastic maker could, for example, investigate prospects in biodegradable polymers or alternative materials. In addition to offering protection from market risks, this method creates new opportunities for income production and promotes long-term sustainability.

Flexibility in Production Processes

Another essential tactic for business owners dealing with unpredictability in the environment is flexibility. Manufacturers can react quickly to changes in the market and requirements from regulators by modifying their business models and production procedures. A company might, for instance, use modular production techniques, which enable swift output modifications in response to changes in demand or legal requirements (Habib et al., 2023). Businesses can efficiently pivot because to this agility, which reduces downtime and maintains operational efficiency. Furthermore, businesses can save waste and become more sensitive to market dynamics by implementing flexible business models, such just-in-time inventory techniques.

Innovation and Eco-Friendly Products

When it comes to reducing environmental uncertainty, innovation is essential. In order to maintain competitiveness and adhere to changing rules, entrepreneurs had to concentrate on creating environmentally friendly products and streamlining production processes. Manufacturers must always innovate, as consumers' preferences for sustainable products grow. Studies show that

businesses that adopt sustainable practices increase both their operational efficiency and market position (Alkhodary, 2023). Businesses that prioritize innovation are able to stand out in a crowded market and comply with laws designed to lessen their negative environmental effects.

Access to Information and Networking

Ultimately, in unpredictable circumstances, having access to trustworthy information is essential for making well-informed decisions. Networks can be created by entrepreneurs to collect information about the state of the industry, changes in regulations, and new trends. Entrepreneurs can gain a deeper awareness of the environment in which they operate by interacting with research institutes, attending conferences, and forming connections with industry groups (Tavassoli, Obschonka&Audretsch, 2021). They can anticipate changes and modify their tactics accordingly thanks to this proactive strategy, which lessens the detrimental effect of uncertainty on investment decisions.

Entrepreneurs in Nigeria's plastic manufacturing industry have a number of options for reducing environmental uncertainty. Access to information, flexibility, innovation, and diversification are vital tools that firms may use to manage risks, seize opportunities, and stay competitive. It will be crucial to implement these tactics as the sector changes in order to promote resilience and guarantee long-term success.

The Role of Entrepreneurial Resilience in Nigeria's Plastic Manufacturing Sector

In order for enterprises to successfully manage the many obstacles encountered in Nigeria's plastic manufacturing industry, entrepreneurial resilience is essential. Entrepreneurs need to be able to adapt and survive as market volatility, environmental risks, and regulatory changes increase in frequency. Adaptability, network usage, and the overall influence on innovation and sustained success are important components of entrepreneurial resilience.

Adaptability to Changing Conditions

Adaptability is one of the main characteristics of resilient entrepreneurs. Entrepreneurs that can adapt their plans and methods in response to changing circumstances are likely to succeed in the plastic manufacturing industry. Resilience, according to Thomas et al. (2022), is anticipating problems ahead of time and not only recovering from setbacks. An entrepreneur might, for instance, change their production methods to concentrate more on environmentally friendly materials if they notice a movement in consumer preferences toward sustainable products. This flexibility helps the company stay competitive over the long term and puts it in a position to satisfy current market demands.

Utilizing Social Networks

Robust social networks constitute an additional crucial component of entrepreneurial resilience. These networks give users access to resources that are necessary for recovering from setbacks, including money, knowledge, and technical know-how. Strong networks help entrepreneurs avoid pitfalls and take advantage of fresh opportunities, according to research by Yu, Choi, and Zheng (2021). For example, a plastic producer can use relationships with trade associations to learn about new regulations or developing technology so they can modify their business practices. Social networks also make it easier to form alliances that boost productivity and creativity, which increases the business's resilience.

Sustained Performance and Innovation

Entrepreneurs that possess resilience are more likely to maintain consistency in their work and encourage innovation in their companies. Effective obstacle-navigating not only helps businesses survive in the short term but also establishes the foundation for long-term viability. A Sabahi&Parast (2020) study found that resilient businesses typically spend more on R&D, which boosts innovation and improves market positioning. Within the Nigerian plastic manufacturing industry, this could take the form of new product launches or advancements in environmentally friendly production methods. Resilient business owners may make sure their companies stay relevant and competitive in the face of shifting market conditions by placing a high priority on innovation.

To successfully navigate the hurdles faced by Nigeria's plastic manufacturing industry, entrepreneurial resilience is essential. Entrepreneurs are more likely to succeed in the long run when they can adjust their strategy, take advantage of social networks, and stay focused on innovation and long-term success. Building resilience will be crucial as the industry develops to overcome setbacks and grasp opportunities, ultimately advancing the sustainability of Nigeria's plastic manufacturing sector.

Conclusion

Nigeria's plastic manufacturing sector is a major employer and producer of manufacturing output in the country, and it is vital to the economy of the country. The present study underscores the urgent necessity of comprehending the dynamic between environmental uncertainties and investment decision-making within this industry's entrepreneurial community. Important sources of uncertainty that make investment strategies more difficult to implement include shifting raw material prices, regulatory changes, unstable economic situations, and technology disruptions. To maintain and expand their companies, entrepreneurs need to overcome these obstacles. According to the findings, adaptive techniques can improve decision-making and long-term performance. They also highlight the significance of innovation and resilience in managing uncertainty.

Recommendations

1. Implement targeted training programs that focus on risk management, innovation, and adaptability to equip entrepreneurs with the skills needed to navigate environmental uncertainties effectively.
2. Facilitate the creation of industry networks to promote collaboration among entrepreneurs, which can provide access to shared resources, funding opportunities, and critical market insights.
3. Develop platforms for disseminating reliable market data and regulatory information. This transparency will help entrepreneurs make informed investment decisions and better assess risks.
4. Promote research and development initiatives aimed at creating eco-friendly products and sustainable manufacturing practices, helping entrepreneurs comply with environmental regulations while meeting consumer demands.
5. Engage with policymakers to develop stable and predictable regulatory environments that minimize uncertainty and support investment in the plastic manufacturing sector.
6. Encourage entrepreneurs to adopt flexible business models that allow for quick adjustments to changing market conditions, thereby enhancing their capacity to survive and thrive in uncertain environments.

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