



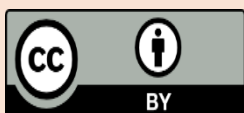
## Adaptive Behavior and Strategic Choice of Manufacturing Firms in Nigeria

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**Annotation.** This study examined the influence of adaptive behavior on strategic choice among manufacturing firms in Nigeria, drawing on Mintzberg's Emergent Strategy Theory as its primary theoretical lens. The persistent volatility of Nigeria's business environment has fundamentally altered how manufacturing firms formulate and sustain competitive strategies. Exchange-rate instability, inflation, regulatory inconsistency, and infrastructural deficits often render formal strategic plans obsolete before implementation, compelling firms to rely on continuous adaptation for survival. Using a quantitative cross-sectional survey design, data were collected from thirty manufacturing firms operating in Rivers State, Nigeria. Adaptive behavior was operationalized through environmental scanning, operational flexibility, improvisation/responsiveness, and learning and renewal, while strategic choice was measured in terms of cost leadership, differentiation, focus, and sustainability orientation. Data were analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM). The findings revealed that all dimensions of adaptive behavior exert a positive and statistically significant influence on strategic choice, with learning and renewal emerging as the strongest predictor. The results confirm that, in volatile environments, strategic choice is not solely the product of deliberate planning but evolves from repeated adaptive actions that are gradually institutionalized into coherent strategic orientations. The study contributes to strategic management literature by providing empirical evidence from a developing economy and reinforcing the relevance of emergent strategy in explaining strategy formation under conditions of persistent uncertainty. Practically, the findings highlight the need for manufacturing managers to prioritize adaptive capabilities and organizational learning as foundations for sustainable strategic direction.

**Keywords:** Adaptive Behavior, Environmental Scanning, Improvisation/Responsiveness, Learning, Strategic Choice.



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### Introduction

The survival of manufacturing firms in Nigeria increasingly depends not on elaborate strategic planning but on their capacity for adaptive behavior.

Persistent currency depreciation, high inflation, erratic government policies, and chronic infrastructural deficiencies have created an environment characterized by continuous turbulence and uncertainty (Akhigbe & Onuoha, 2020; Ele & Etuk, 2022; Modebe & Ezeaku, 2016). Within this context, carefully articulated strategic plans often become obsolete before implementation, compelling firms to rely on environmental scanning, operational flexibility, improvisation, and organizational learning to remain viable. For many Nigerian manufacturers, strategy is no longer defined by formal documents but by patterns of action that emerge in response to uncertainty (Julius, 2017).

Conventional management theory typically assumes a linear relationship between strategy and adaptation, where firms first analyze their environment, formulate deliberate strategies, and subsequently adapt operations to implement those plans (Charles et al., 2015; Deng et al., 2020). However, this sequence is increasingly inconsistent with the realities of developing economies such as Nigeria, where volatility is not episodic but structural. Unpredictable regulatory changes, foreign exchange constraints, and fluctuating market demand often compel manufacturing firms to act swiftly and intuitively, with strategic intent emerging only retrospectively. As Onyokoko and Needorn (2021) observed, operational flexibility among manufacturers in South-South Nigeria functions primarily as a survival response, enabling firms to absorb environmental shocks before such responses are later refined into more coherent strategic directions. Similarly, evidence from Nigerian manufacturing firms suggests that initially reactive measures—such as local sourcing or process reconfiguration in response to foreign exchange scarcity—are frequently institutionalized over time as cost leadership, differentiation, or sustainability-oriented strategies (Tabansi, 2025).

Empirical studies further support this adaptive-to-strategic trajectory. Olamade et al. (2009) demonstrate that firms engaging in systematic environmental scanning are better positioned to align their actions with emerging policy and market conditions. Ekom et al. (2021) find that repeated adaptive responses strengthen dynamic capabilities and organizational resilience, while Okwurume and Igwe (2025) show that environmental dynamism significantly predicts the competitive strategies firms ultimately adopt. Collectively, these findings suggest that, in volatile environments, strategic choice is often learned through experience rather than imposed through prior design. Adaptive behaviors serve as iterative experiments that shape firms' eventual strategic orientations. This perspective aligns with Mintzberg's (1978) emergent strategy framework, which posits that strategy may evolve from consistent patterns of behavior rather than deliberate planning alone. It is further supported by organizational learning theory (Argyris & Schön, 1978) and dynamic capabilities theory (Teece et al., 1997), both of which explain how firms internalize lessons from adaptation and convert them into sustained competitive advantage. Within this theoretical lens, adaptive behavior is not indicative of managerial failure or strategic drift; rather, it represents a foundational mechanism through which strategic choice is formed in turbulent environments.

Despite this growing recognition, empirical research remains limited on how specific dimensions of adaptive behavior translate into strategic choices among manufacturing firms in Nigeria. Much of the existing literature emphasizes performance outcomes, while offering limited insight into the behavioral processes through which firms arrive at particular strategic orientations. Addressing this gap, the present study empirically examines the influence of adaptive behavior on strategic choice among manufacturing firms in Nigeria. Specifically, it investigates how firms' adaptive responses to environmental turbulence, reflected in environmental scanning, operational flexibility, improvisation, and learning and renewal, shape strategic choices such as cost leadership, differentiation, focus, and sustainability orientation. By establishing measurable relationships between adaptive behavior and strategic choice, the study contributes to a contextual understanding of strategy formation in developing economies and highlights how Nigerian manufacturing firms transform short-term survival responses into longer-term strategic direction.

## **Aim and objectives of the study**

The main aim of the study was to investigate the relationship between adaptive behaviour and strategic choice of manufacturing firms in Nigeria. The specific objectives are as follows:

1. To investigate the relationship between environmental scanning and strategic choice of manufacturing firms in Nigeria.
2. To determine the relationship between operational flexibility and strategic choice of manufacturing firms in Nigeria.
3. To examine the relationship between improvisation/responsiveness and strategic choice of manufacturing firms in Nigeria.
4. To investigate the relationship between learning and renewal and strategic choice of manufacturing firms in Nigeria.

## **Research Questions**

The following research questions guided the process of the research:

1. What is the relationship between environmental scanning and strategic choice of manufacturing firms in Nigeria?
2. What is the relationship between operational flexibility and strategic choice of manufacturing firms in Nigeria?
3. What is the relationship between improvisation and responsiveness and strategic choice of manufacturing firms in Nigeria?
4. What is the relationship between learning and renewal and strategic choice of manufacturing firms in Nigeria?

## **Research hypotheses**

The following research hypotheses were formulated and tested which formed the basis for generalization:

Ho1: There is no significant relationship between environmental scanning and strategic choice of manufacturing firms in Nigeria

Ho2: There is no significant relationship between operational flexibility and strategic choice of manufacturing firms in Nigeria

Ho3: There is no significant relationship between improvisation/Responsiveness and strategic choice of manufacturing firms in Nigeria

Ho4: There is no significant relationship between leaning and renewal and strategic choice of manufacturing firms in Nigeria

**Scope of the study:** The study was conducted within manufacturing firms operating only in Rivers State which were closely accessible to the researcher

## **Limitations of the study included the following**

Sample size, the sample size was limited to thirty manufacturing firms in Rivers State which restricted the generalizability of the findings across Nigeria.

**Cross-sectional data;** the research relied on cross sectional data which limited the ability to capture the dynamic evolution of adaptive behavior and strategic choice overtime in Nigeria.

**Respondents:** The research focused only on firm level perceptions obtained from key respondents who may have been biased.

## **Review of Related Literature**

### **Conceptual Review**

#### **Concept of Adaptive Behavior in Manufacturing Firm in Nigeria**

Adaptive behavior in manufacturing firms refers to a firm's capacity to sense, interpret, and respond effectively to persistent environmental disturbances (Onyokoko & Needorn, 2021).

In Nigeria's manufacturing sector, such behavior has become indispensable rather than optional. Firms operate under chronic economic turbulence marked by inflation, exchange rate volatility, erratic government policies, and infrastructural deficiencies (Ele & Etuk, 2022; Modebe & Ezeaku, 2016). Within this context, survival depends largely on how quickly firms can interpret environmental signals and adjust sourcing patterns, production processes, and market approaches to remain competitive (Akhigbe & Onuoha, 2020; Julius, 2017).

Although adaptive behavior is often associated with concepts such as flexibility, agility, resilience, or innovation, it extends beyond any single attribute. Rather, it represents an integrated behavioral response triggered by environmental pressure (Kaiser, 2020; Yousuf et al., 2021; Zemzow, 2020). In the Nigerian manufacturing context, adaptive behavior captures how firms combine these attributes in practice when confronted with instability. Onyokoko and Needorn (2021), for instance, demonstrate that operational flexibility among manufacturers in South-South Nigeria enables firms to absorb supply disruptions and demand fluctuations, underscoring adaptability as the overarching behavioral mechanism through which firms respond to uncertainty.

The primary drivers of adaptation in Nigeria are deeply contextual. For example, Persistent currency depreciation, inflation, rising energy costs, and regulatory instability force firms to continuously reassess operating routines (Akhigbe & Onuoha, 2020; Modebe & Ezeaku, 2016). Competitive pressures, technological change, and unpredictable demand further intensify this need (Morita et al., 2020; Namal et al., 2023). Empirical evidence supports this reality. Igwe et al. (2025) found that manufacturers that rapidly modified production schedules and sourcing channels during supply disruptions sustained higher resilience levels. Similarly, Modebe and Ezeaku (2016) observed that price volatility compels firms to revise procurement and pricing practices, gradually producing identifiable patterns of adaptive behavior.

Practical examples illustrate how adaptation unfolds in Nigerian manufacturing. Unilever Nigeria's response to foreign-exchange scarcity—shifting toward local sourcing—began as an emergency measure but later evolved into a structured cost-leadership and sustainability strategy (Tabansi, 2025). Comparable patterns are evident among small and medium-scale manufacturers in industrial clusters such as Trans-Amadi in Port Harcourt, where firms respond to short-term shocks by altering suppliers, reducing packaging costs, or diversifying product lines, actions that later become institutionalized strategic routines (Julius, 2017). Overall, adaptive behavior among Nigerian manufacturers represents a behavioral continuum. It begins with spontaneous reactions to survive uncertainty and gradually evolves into an organizational learning process through repeated exposure to turbulence (Ekom et al., 2021; Olamade et al., 2009). Over time, firms internalize lessons from these adaptations and embed them into future decision-making, providing a foundation for understanding how adaptive behavior informs strategic choice.

### **Environmental Volatility and Organizational Adaptation in Nigeria's Manufacturing Sector**

Nigeria's manufacturing sector operates within one of the most volatile business environments in Africa. Persistent macroeconomic instability, currency devaluation, inflation, high energy costs, and inconsistent government regulations create a climate of uncertainty that continually tests firms' adaptive capacity. Ele and Etuk (2022) note that infrastructural decay and unreliable power supply significantly increase production costs, compelling firms to redesign operations and develop coping mechanisms to sustain operations. Environmental volatility manifests through both external and internal pressures. Externally, inflation, insecurity, fluctuating interest rates, and foreign exchange scarcity affect purchasing power and access to production inputs. Internally, limited capital and managerial inertia often constrain firms' ability to respond swiftly.

Modebe and Ezeaku (2016) argue that unpredictable production costs disrupt long-term planning and push firms toward reactive cost-minimization strategies. Similarly, Akhigbe and Onuoha (2020) found that environmental turbulence significantly shapes firm outcomes in Nigeria's food and beverage sector, emphasizing adaptability as a critical survival factor. Frequent policy shifts further exacerbate these challenges. Sudden changes in import regulations, tax regimes, and trade

policies alter supply chain dynamics with little warning, forcing firms to rely on short-term, behavior-driven decisions rather than formal strategic planning. Okwurume and Igwe (2025) demonstrate that proactive environmental scanning and continuous adaptation are key determinants of competitiveness among manufacturing firms in Rivers State. These findings suggest that volatility not only threatens firm survival but also stimulates adaptive learning and innovation.

Technological turbulence adds another layer of complexity. While digitalization and automation reshape competitive dynamics, many Nigerian manufacturers operate with obsolete equipment and limited technical capacity. In response, firms often engage in incremental process innovations and improvisations to meet market demands without heavy capital investment. Morita et al. (2025) showed that such internal process adjustments enhance supply chain adaptability during disruptions. The experience of Unilever Nigeria again illustrates this dynamic. Its shift to local sourcing reduced exposure to foreign exchange shocks and gradually redefined its operational model (Tabansi, 2025). Such cases demonstrate how environmental volatility acts as constraint and catalyst, compelling firms to learn, adapt, and institutionalize resilient practices. This dynamic interaction between volatility and adaptation provides a logical bridge to understanding how strategic choices emerge from sustained adaptive behavior.

### **Adaptive Behavior and Strategic Choice among Manufacturing Firms in Nigeria**

The relationship between adaptive behaviour and strategic choice is central to understanding how manufacturing firms survive and compete in turbulent environments. In volatile economies such as Nigeria, adaptation is not peripheral to strategy; rather, it constitutes the foundation upon which strategy is formed. Mintzberg's (1978) Emergent Strategy Theory provides the most appropriate lens for explaining this process, positing that strategies often arise from consistent patterns of action rather than from deliberate planning. Within this perspective, the adaptive actions Nigerian manufacturing firms undertake in response to inflation, exchange-rate volatility, policy inconsistency, and infrastructural challenges gradually crystallise into identifiable strategic choices (Ele & Etuk, 2022; Julius, 2017).

Empirical evidence supports the sequential nature of this relationship, where adaptive behaviour precedes strategic choice. Onyokoko and Needorn (2021) found that operational flexibility and adaptive capabilities among manufacturers in South-South Nigeria initially serve survival purposes but later shape strategic direction. Similarly, Ekom et al. (2021) demonstrate that firms convert repeated adaptive responses into resilience and sustainable competitive advantage, indicating that strategic choice evolves from accumulated adaptive experience rather than from prior design. Studies by Zemzow (2020) and Kada et al. (2021) further show that agility and resilience—core components of adaptive behaviour—function as behavioural roots of later strategic decisions. Through repeated exposure to uncertainty, firms accumulate experiential knowledge that informs how future choices are made (Al-Juboori et al., 2021). This learning process enables organisations to interpret what works, discard ineffective responses, and institutionalise successful routines into structured strategic directions. Thus, adaptation evolves from spontaneous reaction into an organised basis for decision-making.

The Nigerian manufacturing context provides clear illustrations of this dynamic. Unilever Nigeria's response to foreign-exchange scarcity began as a reactive shift toward local sourcing but later evolved into a deliberate cost-leadership and sustainability strategy (Tabansi, 2025). Comparable patterns are evident among manufacturing SMEs in Port Harcourt, where firms initially adjusted sourcing structures or diversified product lines to survive macroeconomic shocks, actions that later became embedded strategic practices (Ele & Etuk, 2022; Julius, 2017). These cases confirm that, in unstable environments, immediate behavioural responses constitute the raw material from which long-term strategies emerge. In contrast, deliberate-planning perspectives (Deng et al., 2020; Voss et al., 2010) assume relatively stable institutional and market conditions that permit prediction and long-term planning. Such assumptions rarely hold in Nigeria's manufacturing environment. Under persistent volatility, formal planning frequently

breaks down, making emergent adaptation the more realistic route to strategy formation. This divergence reinforces Mintzberg's (1978) assertion that strategy often originates "in action" rather than in advance analysis.

Ultimately, adaptive behaviour and strategic choice in Nigerian manufacturing firms are not separate constructs but sequential phases of the same process. The continual need to adjust to economic, technological, and regulatory disruptions fosters a cycle where behavioural flexibility births strategic clarity. This reasoning underpins the conceptual proposition of the present paper: In volatile business environments, adaptive behaviour significantly influences the strategic choices of manufacturing firms in Nigeria. This proposition aligns with Mintzberg (1978) Emergent Strategy Theory, reinforcing that strategy, especially in developing economies, is less an act of prediction and more an evolution of practice.

### **Environmental Scanning**

Borges and Janissek-Muniz (2017) asserts that environmental scanning is characterized as the systematic monitoring of information about events that occur in the organization's external environment. It's a piece of data that can help top management with their responsibilities of laying out the company's potential course of action. Similarly, McLean (2005) defined environmental scanning as a practice of identification, collection and generation of knowledge founded on external data to identify threats and opportunities in anticipation of them. As a result, these strategies can be thought of as organizational factors, which are concerned with developing and sustaining a high-quality, cohesive, and practical organizational factors vision, as well as applying the insights gained in an organizationally useful manner (Tapinos, 2012). Accordingly, environmental scanning, which focuses on gathering and using information on external events and trends, is regarded as a crucial part of the strategic planning process (Chen et al., 2020). Navarro-García (2018) described it as a managerial tool, which uses information about the environment to promote decision-making through the collection, evaluation, and use of information. Environmental scanning is used to spot and monitor existing and emerging trends that present chancy opportunities and present obstacles to an organization's long-term development (Naser & Mokhtar, 2015). Business decision-makers can recognize and foresee environmental change through using environmental scanning to understand the external environment's occurrences (Agbim et al., 2014). Ojah and Amaeshi (2016) asserts that scanning enhances an organization's capacity to manage speedily changing environments by capitalizing on opportunities early, delivering an early warning of implementation issues, increasing an organization's awareness of the changing needs of its clients, and enhancing an organization's reputation with the general public by demonstrating that it is attentive and adaptable to the environment.

### **Operational Flexibility**

Operational flexibility refers to the ability of an organization to make rapid adjustments to changes in the external and internal environment, including in aspects of production, distribution, use of technology, and decision making (Liu, 2021). Operational flexibility, a fundamental facet of resilience, has become indispensable for swiftly and efficiently responding to dynamic environments, thereby enhancing overall performance. Flexibility, in this context, denotes the capacity to adapt quickly with minimal adverse effects on time, cost, effort, or performance as situations evolve (Shlapak, et al., 2019). The concept of operational flexibility involves the proactive or reactive response to uncertainties within the business environment. Operational flexibility is the capacity of organizations to effectively navigate both internal and external challenges, leading to the creation of competitive advantages and a reduction in potential losses (Idris, et al., 2012; Samuel, et al., 2015). Operational flexibility has become an essential capability which an organization seeks to have because it enables companies to respond quickly and effectively to dynamic environments. In all dimensions, operational flexibility refers to a company's capability to respond to uncertainty in their business environment, either proactively or reactively; this capability has many dimensions which may differ in importance across various environments (Stevenson & Spring, 2007)

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## **Improvisation/Responsiveness**

The notion of improvisation comes from the observation that some people have a unique ability to create things out of existing limited resources—to improvise (Hmieleski & Corbett, 2006). That ability allows them to do things in a way that is different from the others—and sometimes that difference results in forming a venture in a resource-saving way. Additionally, improvisation involves more iterative and pivoting action (Baker, Miner & Eesley, 2003) which is in line with one of the key principles of responsible innovation—responsiveness (Stigloe, Owen & Macnaghten, 2013). There is evidence that improvising is therefore beneficial for organisation (Hmieleski & Corbett, 2006). Recent research increasingly frames improvisation as a dynamic, emergent capability that enables firms to respond effectively to unexpected events and turbulence by integrating thinking and action simultaneously (Vera & Crossan, 2020; Hadjimichael, 2023). This capability allows organizations to navigate high levels of uncertainty, where traditional planning alone may be too slow or rigid to address emergent challenges (Hadida, Tarvainen, & Rose, 2022). Improvisation enhances responsiveness by reducing the time between sensing changes in the environment and implementing appropriate responses. In fast-moving and complex contexts, such as digital markets or global value chains, the capacity to improvise supports organizational responsiveness by enabling flexible reconfiguration of resources and processes without waiting for hierarchical approval or detailed planning (Cunha, Clegg, Rego, & Neves, 2023). Responsiveness in this sense entails not just speed but also the quality of the response, ensuring that actions are aligned with evolving stakeholder needs and environmental demands (Cunha, et al., 2023; Kyriakopoulos, 2021).

## **Learning and Renewal**

Learning refers to how organizations acquire, interpret, share, and apply new knowledge to improve understanding and behaviour, emphasizing processes of knowledge acquisition, interpretation, distribution, and application rather than mere accumulation of information (Liao, Fei & Liu, 2008; Moorman & Miner, 1998). Meanwhile, renewal often discussed under the concept of strategic renewal, refers to the deliberate transformation of organizational strategies, structures, and capabilities to adapt to environmental shifts and sustain long-term relevance (Agarwal & Helfat, 2009). Organizational learning is a key mechanism enabling such ongoing renewal (Crossan, Lane & White, 1999; Crossan & Berdrow, 2003). Learning is not merely the accumulation of information but a systematic process of knowledge creation and utilization that shapes behavior and decision-making. Early foundational work by Argyris and Schön (1978) framed learning as the detection and correction of errors, distinguishing between single-loop learning (adjusting actions within existing frameworks) and double-loop learning (questioning and altering underlying assumptions and values). This distinction underscores that renewal requires deep learning that challenges existing mindsets rather than merely improving current practices. Huber (1991) further defined organizational learning as changes in organizational knowledge that enhance the organization's ability to take effective action, emphasizing processes such as experimentation, information distribution, and interpretation.

## **Concept of Strategic Choice in Manufacturing Firms**

Strategic choice refers to the deliberate decisions through which organizations determine how to compete, allocate resources, and pursue long-term objectives (Djordjević, 2014). In Nigeria's manufacturing sector, strategic choice has evolved from a purely planned managerial exercise into an outcome shaped by continuous interaction with an unstable environment (Ele & Etuk, 2022; Julius, 2017). Persistent exchange-rate volatility, inflation, and regulatory uncertainty limit the usefulness of rigid strategic blueprints, causing strategic direction to emerge gradually from adaptive responses. While strategic choice traditionally involves evaluating alternatives and selecting optimal courses of action, such processes assume relatively stable conditions and reliable forecasts (Djordjević, 2014). Nigerian manufacturers operate under high uncertainty, where long-term prediction is unreliable. Consequently, strategic choices tend to evolve from repeated behavioral adjustments that later become formalized strategies (Julius, 2017; Suh & Lee, 2018).

Empirical evidence supports this perspective. Suh and Lee (2018) show that firms pursuing sustainable strategies integrate environmental scanning, capability assessment, and resource constraints into their decision-making processes. In Nigeria, similar patterns are evident where reactive decisions—such as shifting from imported to locally sourced inputs due to foreign-exchange scarcity—eventually crystallize into deliberate cost-leadership, differentiation, or sustainability-oriented strategies (Ele & Etuk, 2022; Julius, 2017). Strategic choice is also shaped by managerial interpretation of environmental signals. Krzakiewicz and Cyfert (2017) argue that dynamic capabilities enable managers to reconfigure resources in response to perceived opportunities. In turbulent economies, this reconfiguration reflects learning from repeated exposure to uncertainty rather than foresight alone (Ekom et al., 2021).

Charles et al. (2015) further note that strategic choice often draws on accumulated routines and competencies developed through prior adaptive actions. Thus, strategic choice in Nigeria's manufacturing sector can be viewed as the deliberate codification of past adaptive behavior. Firms embed lessons from survival experiences into long-term direction, blurring the boundary between reaction and intention (Ekom et al., 2021; Julius, 2017). Ultimately, strategic choice represents a synthesis of reaction to environmental volatility and reflection on what those reactions reveal about enduring organizational strengths. This view aligns with prior studies that characterize strategy formation in emerging economies as an outcome of continuous adaptation and learning rather than purely deliberate planning (Devick, 2014; Suh & Lee, 2018)..

### **Theoretical Underpinning of the Study**

Mintzberg's Emergent Strategy Theory (1978) challenges the assumption that strategy is always the outcome of deliberate planning. Instead, it argues that strategy often emerges from consistent patterns of behaviour that develop as organisations respond to real-world challenges. This perspective is particularly relevant in unstable environments where uncertainty limits the effectiveness of predictive planning. Within Nigeria's manufacturing sector, the theory provides a robust explanation for how survival-driven actions evolve into strategic choices. Ele and Etuk (2022) showed that firms frequently initiate reactive measures—such as cost reduction, local sourcing, or production diversification—to cushion inflation and exchange-rate shocks. Over time, these actions become institutionalised as deliberate strategies that define competitive positioning. Onyokoko and Needorn (2021) similarly found that adaptive capabilities initially developed for operational survival later underpin strategic resilience. These findings align with Mintzberg's argument that strategy emerges through action rather than pre-formulation, making emergent strategy the most appropriate theoretical anchor for this study.

Furthermore, Organizational Learning Theory (Argyris & Schön, 1978) and Dynamic Capabilities Theory (Teece et al., 1997) provide supportive explanations for how emergent strategies are consolidated and sustained. Organizational learning explains how firms interpret outcomes of adaptive actions and convert experience into organisational knowledge (Al-Juboori et al., 2021; Ekom et al., 2021). Dynamic capabilities, in turn, explain how firms reconfigure resources and routines based on this learning to sustain competitive advantage (Nyachanchu et al., 2017; Krzakiewicz & Cyfert, 2017). Together, these supporting theories clarify the mechanisms through which emergent strategies are stabilised, but Mintzberg's Emergent Strategy Theory remains the primary lens through which adaptive behaviour and strategic choice are understood in this study.

### **Empirical Review**

Empirical research within Nigeria's manufacturing context provides concrete evidence that firms' adaptive behaviours are the primary precursors of their strategic choices. For instance, Onyokoko, and Needorn (2021) examined operational flexibility and adaptive capability of manufacturing firms in South-South Nigeria and found a significant positive relationship between adaptability and performance outcomes. Their study demonstrated that firms which responded swiftly to market and regulatory turbulence later institutionalised those reactive behaviours as deliberate strategies. This suggests that flexibility initially a response mechanism evolves into a structured strategic approach once firms recognise its effectiveness.

Similarly, Ekom et al. (2021) in their study on dynamic capabilities and organisational resilience of manufacturing firms in Nigeria discovered that repeated adaptive routines form the foundation of a firm's competitive posture. Firms that continuously adjusted production schedules, sourcing channels, or product lines in response to macroeconomic shocks developed enduring strategic strengths over time. This empirical pattern validates Mintzberg (1978) argument that strategies emerge through patterns of action, and it affirms the Nigerian experience where survival precedes structure. Olamide et al. (2009) further reinforced this relationship in their study on environmental scanning strategies of manufacturing companies in South-Western Nigeria. They found that adaptive environmental scanning practices such as regular market observation, policy monitoring, and supplier feedback directly influence the quality of strategic decision-making. This finding underscores the adaptive-to-strategic link by showing that behavioral attentiveness to change gradually becomes a formal strategic system.

In the same vein, Okwurume & Igwe (2025), examining strategic environmental dynamism and competitive advantage implications in manufacturing firms in Rivers State, Nigeria, confirmed that firms that adapted faster to policy shifts and technological disruptions reported higher strategic responsiveness. Their findings show that environmental dynamism triggers behavioral flexibility, which, when refined through experience, results in stronger strategic orientation. Within comparable African contexts, Nyachanchu et al. (2017) studied manufacturing firms in Nairobi County, Kenya, and reported that dynamic capabilities developed through adaptation were central to firms' strategic management and survival. Their conclusion resonates with Nigerian realities, highlighting that adaptive competence is the seedbed of strategic capability in volatile economies.

Beyond Africa, Suh & Lee, (2018) explored manufacturing SMEs in Asia and observed that sustainability-oriented strategies often originate from operational adjustments necessitated by environmental uncertainty. Although their context differs, the empirical trajectory mirrors Nigeria's: adaptive behaviour becomes formalised as strategy through experience and learning. Conversely, a minority of studies argue from the opposite direction that strategic choice precedes adaptation. Deng et al. (2020), for instance, in their research on international strategies of emerging-market multinationals, found that firms with pre-existing global strategies adapted more effectively to environmental shocks. Similarly, Mushangai (2023) argued that dynamic capabilities are not only results of adaptation but also products of strategic foresight and planning. These perspectives, while valuable, assume a level of environmental predictability absent in the Nigerian context.

Collectively, the empirical literature converges on a dominant pattern: in Nigeria's volatile manufacturing environment, adaptation serves as the initial driver of strategic choice. Firms rarely begin with comprehensive strategic frameworks; instead, they learn from experience, codify successful responses, and evolve them into deliberate plans. The consistency of this pattern across multiple empirical studies validates the conceptual proposition of this paper that adaptive behavior significantly influences strategic choice among manufacturing firms in Nigeria.

## **Research Methodology**

### **Research Philosophy**

This study was grounded in a pragmatic research philosophy, which recognizes that organizational realities, particularly in volatile environments, are shaped by both objective conditions and managerial interpretations. Pragmatism allows the use of empirical methods to examine how firms respond to real-world problems and make strategic choices under uncertainty (Creswell, 2014). In the context of Nigerian manufacturing firms, adaptive behavior and strategic choice are observable through managerial actions, routines, and decisions, making a pragmatist stance suitable for linking theory with practice. Accordingly, the study adopted a deductive reasoning approach, drawing on Mintzberg's Emergent Strategy Theory (1978) to test empirically how

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adaptive behavior influences strategic choice.

## Research Design

The study employed a quantitative, cross-sectional survey design. This design is appropriate for examining relationships between adaptive behavior and strategic choice across a broad set of manufacturing firms at a single point in time. A cross-sectional approach allows the capture of current adaptive practices and strategic orientations within Nigeria's turbulent manufacturing environment, where conditions change rapidly and longitudinal data are often difficult to obtain.

## Population for the Study

The population for the study comprised of manufacturing firms operating within Rivers State, located in the South-South geopolitical zone of Nigeria. These firms were selected from three major subsectors of the manufacturing industry, namely food and beverages, chemical and allied products, and building materials and goods manufacturing firms. Ten firms (33%) were drawn from the food and beverage subsector, Twelve firms (40%) were drawn from the chemical and allied products subsector, and the remaining eight firms (27%) were drawn from the building materials and consumer goods subsector. These thirty firms were identified as meeting the inclusion criteria of active involvement in manufacturing operations, having a minimum of five years of operational experience in Nigeria, and direct exposure to environmental disruptions, and directly involved in adaptive and strategic decision-making. This approach resulted in a total sample size of thirty respondents

## Sampling Technique

The study sample consisted of thirty manufacturing firms operating within Rivers State, Nigeria. Given the manageable size of the population, this study employed a census sampling technique. All thirty firms that met the inclusion criteria were selected, thereby ensuring comprehensive coverage and eliminating sampling bias.

## Data Collection Instrument

Data were collected using a structured questionnaire designed to capture measurable indicators of adaptive behavior and strategic choice among manufacturing firms. The instrument comprised closed-ended items measured on a five-point Likert Scale, ranging from strongly disagree to strongly agree. The questionnaire was organized into three sections: Section A captured organizational and respondent characteristics; Section B measured dimensions of adaptive behavior: environmental scanning, operational flexibility, improvisation/responsiveness, and learning and renewal; while Section C assessed strategic choice indicators, namely cost leadership, differentiation, focus/niche strategy, and sustainability orientation.. A pilot test was conducted to ensure clarity, reliability, and contextual relevance of the instrument.

## Reliability and Validity Assessment

Internal consistency reliability was assessed using Cronbach's alpha and composite reliability (CR). Following established thresholds, values of 0.70 and above were considered acceptable for both measures, indicating adequate internal consistency.

**Construct validity** was evaluated through confirmatory factor analysis, examining factor loadings, average variance extracted (AVE), and discriminant validity.

**Convergent validity** was confirmed where item loadings exceeded recommended thresholds and AVE values were above 0.50.

**Discriminant validity** was assessed using the heterotrait-monotrait (HTMT) ratio, ensuring that constructs were empirically distinct. These procedures ensured that the instrument was reliable and suitable for subsequent structural model estimation.

**Content validity** was ensured through expert review by academics and practitioners in strategic management and manufacturing firms.

## Method of Data Analysis

Data analysis was conducted using Partial Least Squares Structural Equation Modelling (PLS-SEM) with SmartPLS 3 software. PLS-SEM was selected due to its suitability for small sample sizes, non-normal data, and exploratory model testing. The analysis involved assessment of the measurement model using indicator loadings, Cronbach's alpha, Composite Reliability (CR), and Average Variance Extracted (AVE), while discriminant validity was evaluated using the Fornell–Larcker criterion and cross-loadings. The structural model was assessed through path coefficients, coefficient of determination ( $R^2$ ), and predictive relevance ( $Q^2$ ). Hypotheses were tested using a bootstrapping procedure with 5,000 resamples, and multicollinearity was examined using Variance Inflation Factor (VIF) values.

## Results and Analysis

### Descriptive Statistics of Study Variables

Table 1 presents the descriptive statistics for the measurement items relating to adaptive behavior and strategic choice. Mean values above the criterion mean of 3.00 indicate general agreement among firms regarding the presence of adaptive practices and strategic orientations.

**Table 1.** Descriptive Statistics of Study Variables.

| Construct                    | Item Statement                                                            | Mean | SD   |
|------------------------------|---------------------------------------------------------------------------|------|------|
| Environmental Scanning       | ES1: Our firm systematically monitors changes in government policies.     | 4.13 | 0.62 |
|                              | ES2: Exchange rate and inflation trends are closely tracked.              | 4.21 | 0.58 |
|                              | ES3: Competitors' actions are regularly analyzed.                         | 4.05 | 0.66 |
|                              | ES4: Information on customer demand is actively gathered.                 | 4.10 | 0.63 |
|                              | ES5: Environmental information is quickly communicated to top management. | 4.18 | 0.60 |
| Operational Flexibility      | OF1: Production levels can be adjusted quickly.                           | 4.09 | 0.65 |
|                              | OF2: Suppliers can be switched when necessary.                            | 3.98 | 0.71 |
|                              | OF3: Production processes can be modified without disruption.             | 4.02 | 0.68 |
|                              | OF4: Resources are rapidly reallocated to address challenges.             | 4.06 | 0.64 |
|                              | OF5: Logistics and distribution systems are adaptable.                    | 3.95 | 0.69 |
| Improvisation/Responsiveness | IR1: Managers make quick decisions under uncertainty.                     | 4.15 | 0.59 |
|                              | IR2: Managerial intuition guides responses to shocks.                     | 4.11 | 0.61 |

| Construct            | Item Statement                                                           | Mean | SD   |
|----------------------|--------------------------------------------------------------------------|------|------|
|                      | IR3: Temporary solutions are used to address urgent problems.            | 4.04 | 0.66 |
|                      | IR4: Employees are encouraged to act creatively.                         | 3.97 | 0.70 |
| Learning and Renewal | LR1: Past responses are reviewed for lessons learned.                    | 4.08 | 0.63 |
|                      | LR2: Successful adaptations are institutionalized.                       | 4.12 | 0.60 |
|                      | LR3: Learning from success and failure is encouraged.                    | 4.18 | 0.57 |
|                      | LR4: Practices are updated based on experience.                          | 4.10 | 0.61 |
|                      | LR5: Adaptation leads to permanent improvements.                         | 4.06 | 0.64 |
| Strategic Choice     | SC1: Cost reduction through efficiency and local sourcing is emphasized. | 4.14 | 0.59 |
|                      | SC2: Minimizing operating costs is central to strategy.                  | 4.20 | 0.56 |
|                      | SC3: Product quality or differentiation is emphasized.                   | 4.05 | 0.65 |
|                      | SC4: Product or process innovation is regularly pursued.                 | 4.09 | 0.62 |
|                      | SC5: Specific customer or regional markets are targeted.                 | 3.98 | 0.68 |
|                      | SC6: Resources are focused on niche markets.                             | 3.94 | 0.70 |
|                      | SC7: Sustainability is embedded in strategic decisions.                  | 4.07 | 0.63 |
|                      | SC8: Adaptive actions align with long-term competitiveness.              | 4.16 | 0.58 |

Criterion Mean = 3.00

**Source:** *Field Survey Computation, 2025*

All study variables recorded mean scores well above the criterion mean of 3.00, indicating strong agreement that Nigerian manufacturing firms actively engage in adaptive behaviours such as environmental scanning, operational flexibility, improvisation, and learning, which consistently translate into deliberate strategic choices like cost leadership, differentiation, focus, and sustainability. In essence, the results confirm that adaptation is deeply embedded in firms' strategic choice.

### Hypotheses Testing and Structural Model Results

The structural model was evaluated using Partial Least Squares Structural Equation Modelling (PLS-SEM) in Smart PLS to test the hypothesised relationships between the dimensions of adaptive behavior and strategic choice among manufacturing firms in Rivers State. Hypotheses were tested using a bootstrapping procedure with 5,000 resamples, which generated standardized

path coefficients ( $\beta$ ), t-values, and p-values. The coefficient of determination ( $R^2$ ) was used to assess the explanatory power of the model. The results indicate that the model explains a substantial proportion of variance in strategic choice ( $R^2 = 0.62$ ), suggesting that adaptive behavior dimensions jointly provide strong explanatory power for firms' strategic choices in a volatile manufacturing environment.

Environmental scanning exhibited a positive and statistically significant effect on strategic choice ( $\beta = 0.31$ ,  $t = 2.41$ ,  $p < 0.05$ ), leading to the rejection of the null hypothesis. This implies that firms that actively monitor policy changes, market trends, and competitive dynamics are more likely to adopt coherent strategic choices such as cost leadership, differentiation, and sustainability orientation. This finding supports Mintzberg's (1978) Emergent Strategy Theory, which posits that strategy evolves from continuous interaction with the environment rather than from detached planning.

Operational flexibility also showed a positive and significant relationship with strategic choice ( $\beta = 0.27$ ,  $t = 2.08$ ,  $p < 0.05$ ), resulting in the rejection of the null hypothesis. This suggests that the ability to quickly adjust production processes, sourcing arrangements, and resource allocation enables manufacturing firms to translate adaptive actions into deliberate strategic directions. The result highlights flexibility as a critical behavioral mechanism through which firms stabilize strategic intent under environmental turbulence.

Improvisation and responsiveness demonstrated a positive but weaker effect on strategic choice ( $\beta = 0.19$ ,  $t = 1.71$ ,  $p < 0.10$ ). Although marginally significant, the relationship indicates that intuitive and ad hoc decision-making contributes to strategic choice, particularly in contexts where complete information is unavailable. Substantively, this finding reflects the Nigerian manufacturing reality, where rapid managerial judgment often precedes formal strategy formation, consistent with the emergent strategy perspective.

Learning and renewal recorded the strongest and most statistically significant effect on strategic choice ( $\beta = 0.38$ ,  $t = 3.12$ ,  $p < 0.01$ ), leading to the rejection of the null hypothesis. This result underscores that firms that systematically reflect on past adaptive actions and institutionalize successful responses are better positioned to embed adaptation into long-term strategic choices. The finding reinforces the theoretical argument that repeated adaptation generates organizational learning, which ultimately crystallizes into sustained strategic direction.

Overall, the results provide empirical support for the study's central proposition that adaptive behavior significantly influences strategic choice among manufacturing firms operating in volatile environments. The findings affirm that strategy in the Nigerian manufacturing context is not solely the outcome of deliberate planning but emerges through a process of environmental sensing, flexible action, improvisation, and organizational learning.

**Table 2.** Structural Model Results (Path Coefficients and  $R^2$ ).

| Hypothesised Path                                           | $\beta$ | t-value | p-value | Decision              |
|-------------------------------------------------------------|---------|---------|---------|-----------------------|
| Environmental Scanning $\rightarrow$ Strategic Choice       | 0.31    | 2.41    | 0.016   | Reject $H_0$          |
| Operational Flexibility $\rightarrow$ Strategic Choice      | 0.27    | 2.08    | 0.038   | Reject $H_0$          |
| Improvisation/Responsiveness $\rightarrow$ Strategic Choice | 0.19    | 1.71    | 0.088   | Reject $H_0$ (at 10%) |
| Learning & Renewal $\rightarrow$ Strategic Choice           | 0.38    | 3.12    | 0.002   | Reject $H_0$          |

$R^2$  (Strategic Choice) = 0.62

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**Source:** *SmartPLS 3 Output, Field Survey Computation (2025)*

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## Discussion and Implications

The findings of this study provide strong empirical support for the proposition that adaptive behavior significantly influences strategic choice among manufacturing firms in Nigeria. Specifically, the results demonstrate that environmental scanning, operational flexibility, improvisation/responsiveness, and learning and renewal each exert a positive and statistically significant effect on firms' strategic choices. This confirms that, within volatile environments such as Rivers State, strategy does not emerge primarily from formal planning but evolves through repeated adaptive responses to environmental turbulence.

The strong effect of environmental scanning on strategic choice reinforces earlier findings by Olamide et al. (2009) and Okwurume and Igwe (2025), who established that systematic monitoring of policy, market, and competitive conditions enhances strategic responsiveness. In the present study, firms that actively tracked regulatory changes, inflation trends, and customer demand were better positioned to make informed strategic choices regarding cost leadership, differentiation, and market focus. This suggests that attentiveness to environmental signals functions as the cognitive foundation upon which strategic direction is formed. Similarly, the significant influence of operational flexibility aligns with Onyokoko and Needorn's (2021) conclusion that flexibility is not merely a performance enhancer but a strategic enabler. Nigerian manufacturing firms that could rapidly adjust production volumes, sourcing arrangements, and resource allocation were more likely to institutionalize these adjustments into long-term strategic orientations. This supports Mintzberg's (1978) argument that strategy emerges from patterns of action rather than from ex ante design, particularly in unstable contexts.

The results also highlight the strategic relevance of improvisation and responsiveness, indicating that intuitive and ad hoc decision-making under uncertainty contributes meaningfully to strategic choice. This finding resonates with Ekom et al. (2021), who observed that repeated crisis-driven responses enhance organizational resilience and strategic clarity over time. In environments where complete information is rarely available, improvisation becomes a necessary precursor to deliberate strategy rather than a deviation from it.

Finally, learning and renewal emerged as a critical mechanism linking adaptation to strategy. Firms that reviewed past responses, institutionalized successful adaptations, and encouraged learning from both success and failure demonstrated stronger strategic alignment and sustainability orientation. This finding reinforces the empirical patterns reported by Ekom et al. (2021) and Nyachanchu et al. (2017), and underscores the role of experiential learning in transforming short-term survival behaviors into enduring strategic capabilities. From a theoretical standpoint, these results strongly validate Mintzberg's Emergent Strategy Theory as the principal explanatory framework for strategy formation in Nigeria's manufacturing sector. While organizational learning and dynamic capabilities theories provide supportive explanatory mechanisms, the evidence confirms that strategy in this context originates in action, not prediction. Practically, the findings imply that manufacturing managers should prioritize adaptive capacity-building—such as environmental scanning systems, flexible operations, and learning routines—rather than relying solely on rigid strategic plans. Policymakers can also support industrial competitiveness by reducing regulatory uncertainty and improving infrastructure, thereby enabling firms to convert adaptive efforts into sustainable strategic outcomes.

## Conclusion

This study set out to examine the influence of adaptive behavior on strategic choice among manufacturing firms operating in a turbulent Nigerian business environment. Drawing on Mintzberg's Emergent Strategy Theory and empirical evidence from manufacturing firms in Rivers State, the study demonstrates that strategic choice is largely an outcome of accumulated

adaptive behaviors rather than purely deliberate planning. The results confirm that environmental scanning, operational flexibility, improvisation/responsiveness, and learning and renewal collectively shape how firms choose cost leadership, differentiation, focus, and sustainability-oriented strategies. By empirically linking adaptive behavior to strategic choice, the study contributes to the growing literature on strategy formation in developing economies, where uncertainty and instability challenge traditional planning-based models. The findings reinforce the argument that, in volatile contexts, strategy is best understood as an evolving pattern of actions shaped by experience. Overall, the study provides a context-sensitive explanation of how Nigerian manufacturing firms transform survival-oriented behaviors into enduring strategic direction.

## Recommendations

1. The management of manufacturing firms in Nigeria should monitor events that occur in their organistaion's external environment to enable laying out potential course of action and take decisions on strategic choice.
2. The management of manufacturing firms should incorporate rapid adjustments to changes in the external environment, including production, distribution and use of technology in their strategic choice.
3. The management of manufacturing firms in Nigeria should have a unique ability to create things in ways that are different from others, respond effectively to unexpected events and turbulence by integrating thinking and action simultaneously in their strategic choice
4. The management of manufacturing firms in Nigeria should have knowledge acquisition, sharing, and application as their strategic choice to enable knowledge improvement, understanding, and transformation of their strategies, structures, capabilities, adapt to environmental shifts to sustain long term relevance.

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