

Strategic Leadership and Organizational Resilience of Pharmaceutical Firms in South-West Nigeria

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Abstract: *This study examined the relationship between strategic leadership and organizational resilience of pharmaceutical firms in South-West Nigeria. The study applied a cross-sectional survey research design. A total of two hundred and twenty-five (225) owners, managers and supervisors of pharmaceutical firms in South-West Nigeria, constituted the population size. The hypotheses formulated for the study were tested using Structural Equation Modelling (SEM). The outcome of the analysis revealed a significant positive association between the sub-constructs of strategic leadership (managerial wisdom and ethical practices) and those of organizational resilience (adaptive capacity and innovativeness). It was concluded that strategic leadership drives organizational resilience of pharmaceutical companies in South-West Nigeria. Thus, it is recommended that owners, managers, and supervisors of pharmaceutical firms should: develop managerial wisdom to help build a resilient company; which can be achieved committing to regular management development training and learning, as this will provide the necessary managerial wisdom to effectively pick cues from industry events, predict the possible direction of the industry, and reconfigure processes and resources (both human and material) to ensure the business remains ahead of any eventualities; and undertake regular ethics training in order to improve the abilities of personnel at all levels, increase the company's resilience in the face of shocks, and foster a culture of shared awareness and weakness management.*

Keywords: Strategic Entrepreneurship, Resilience, Managerial Wisdom, Ethical Practices, Innovativeness, Adaptive Capacity

Introduction

The pharmaceutical industry is crucial to every economy because of its impact on the health of its population. The situation is not unique to Nigeria. The pharmaceutical business in Nigeria has enormous potential to become a dominant player in the production, distribution, and retail sale of pharmaceuticals over the whole region of Sub-Saharan Africa. The Nigerian pharmaceutical market is expected to grow at a CAGR of 9.0% from 2016 to 2026, reaching \$3.6 billion in value by that year and making it larger than the South African market in its current size (Holt et al., 2017; Okereke et al., 2021). Stock-outs, fraudulent and counterfeit goods, interruptions, outdated pharmaceuticals, corruption, inadequate infrastructure, and weak regulatory systems are just a few of the problems the industry suffers (Aigbavboa & Mbohwa, 2020). Thus, the focus of this research is on how to make businesses more resilient.

Research on organisational resilience has been gaining momentum as a means of equipping executives with the information they need to effectively deal with external shocks (Al Balushi, 2020; Doantan & Kozak, 2019; Pariès, 2017; Wishart, 2018). Businesses in the modern era are under constant threat from a variety of external factors, such as the ever-increasing intensity of economic and environmental crises and competitiveness. That's why it's crucial for businesses to build a foundation of resilience in order to weather the storms of complexity, uncertainty, and crises as well as the storms of pressure and competition.

Literature on organisational resilience identifies a number of factors as proxies, including adaptive ability and innovativeness (Akgün et al., 2012; Pallister & Foxall, 1998). The ability to modify behaviour in response to novel circumstances is known as adaptive capacity. The ability of a firm's management to reshape the company's internal strategy in response to changes in the external environment indicates that the organisation has a high adaptive capacity (Ali et al., 2017; Zhu et al., 2017). The degree to which a person or group is innovative is measured by how quickly they adopt novel concepts. The ability to adapt to the ever-shifting needs of the market and capitalise on consumers' ever-changing tastes and preferences is a cornerstone of competitive advantage (Isichei et al., 2020).

To make sense of and give meaning to environmental turbulence uncertainty and to create a vision and road map that allows a business to adapt and innovate, leaders are essential in the design, execution, and control of strategy (Miriti, 2021). It is hypothesised there exists a correlation between strategic leadership and organisational resilience. Strategic leadership entails a variety of skillsets, including foresight, vision, adaptability, strategic thinking, and the ability to inspire and encourage staff to come up with novel solutions to problems (Ireland & Hitt, 1999). Greene & Brown (2009) and Zappalà & Toscano (2020) provide examples of studies that evaluate managerial wisdom and ethical practices.

Managerial wisdom guarantees that managers are led not just by cold, hard cash but also by ethics, moral values, emotional intelligence, and cultural and religious sensibility in all of their actions, choices, and practises (Jakubik, 2021). Ethical practices in business is the habit of acting morally in a business setting. Organizational success has been connected to ethical practises because of the good effect they have on employee productivity, reputation, and a distinct edge over rivals (Kul, 2017). (Price, 2015; Rhodes & Wray-Bliss, 2012).

Management growth (Umoh et al., 2014), ambidexterity (Onwughalu & Amah 2017), crisis management (Isirimah & Onuoha 2020), organisational mindfulness, and psychological capital are only few of the predictors of organisational resilience that have been identified by existing research (Ateke & Ekweozor, 2020). In the Nigerian pharmaceutical business, however, there appears to be little empirical research on the connection between strategic leadership and organisational resilience. This research stands out from others in the field because it examines the link between strategic leadership and the resilience of pharmaceutical firms in South-West Nigeria.

Hypotheses

As a guide to the rest of the study, the following hypotheses are framed:

H₀₁: There is no significant association between managerial wisdom and adaptive capacity.

H₀₂: There is no significant connection between managerial wisdom and innovativeness.

H₀₃: There is no significant association between ethical practices and adaptive capacity.

H₀₄: There is no significant connection between ethical practices and innovativeness.

Significance of the Study

The significance of this study is categorized into practical and theoretical significance.

Practical Significance

This research will be useful for the pharmaceutical industry as it will illuminate the range of leadership practises that can strengthen the industry's capacity for resilience. A more adaptable, strong, and inventive pharmaceutical manufacturing sector that serves the economy and its citizens is the end goal of this research. Finally, the study's suggestions will help policymakers zero in on the most pressing problems facing the industry, from which they may then design effective solutions.

Theoretical Significance

The study contributes to knowledge by filling the identified conceptual and methodological gaps. Also, the study is a resourceful source of literature on strategic leadership, managerial wisdom, strategic intent, ethical practices, organizational resilience, adaptive capacity, robustness, and innovativeness.

Literature Review

Theoretical Framework

Upper Echelons Theory

Managers, organisational procedures, and results are the focus of this theory. Hambrick and Mason's key study, "Why do organisations act as they do?," from 1984 gave rise to this idea by placing increased focus on the authority and sway of top senior managers like chief executive officers (CEOs) and chief financial officers (CFOs) (CFO). The notion is based on the premise that a company's success or failure is heavily influenced by the knowledge, skill, and experience of the company's top executives (Hambrick & Mason, 1984). Moreover, they stated that senior managers deal with emerging difficulties in companies and that their individual traits heavily impact the strategic decisions they make. Thus, the beliefs and worldviews of influential people inside an organisation are reflected in its policies and procedures (Carpenter et al., 2004). Managers' opinions weigh heavily on strategic decisions that they may have an impact on the organization's productivity as a whole. Their distinctive ideals and varying degrees of understanding shape this perspective. According to Carpenter et al. (2004), elements including team processes, incentives, and integration with others and the environment govern the capacity or sort of support and impact of the senior leaders. So, it's not just the external world that influences an organization's actions and results; internal factors have a role, too.

Applying the idea to an organization's current crop of upper-level leaders becomes useful for forecasting its future success. The idea also guides the organisation in hiring executives of the appropriate calibre and helps rivals anticipate the activities of competing enterprises. In general, decisions and tactics are biased and subjective because they are formed by humans, whose perception of the world is constrained by factors like as their senses, their values, their beliefs, their preferences, their education, their experience, and so on (Hambrick & Mason, 1984). Accordingly, the traits of such individuals show up in their strategic decisions, which in turn affects the strategic actions taken by businesses (Hambrick & Mason, 1984). On the other hand, Hambrick (2007) argued that the hypothesis lacked a compelling connection between management traits and organisational performance. Furthermore, it has not been

proven that comparable traits lead to similar strategic decisions. In spite of these caveats, the theory provides a clearer picture of how managers' outlooks and personalities shape their organisations' outcomes.

Dynamic Capability Theory (DCT)

According to the dynamic capability theory (DCT), in order for a business to maintain a competitive edge over time, it must be able to quickly adapt to new market conditions by either developing and deploying new skills and resources or reallocating existing ones (Eisenhardt & Martin, 2000; Yu et al., 2019). Based on the premise that different types of firms contain different types of valuable, uncommon, and necessary resources, this theory arose as an extension of Resource Base View (RBV) Theory (Liu et al., 2016). DCT corrects the flaw in RBV by appropriately planning the resources and capabilities in response to the changes in each state, whereas RBV fails to make an accurate judgement of the capabilities needed when disturbances occur in uncertain situations (Chowdhury & Quaddus, 2017).

However, the concept of sustained competitive advantage based on the acquisition of valuable, rare, inimitable, and non-substitutable (VRIN) resources is expanded upon by the dynamic capacities (DC) hypothesis. Organisations can integrate, marshal, and rearrange their resources and skills thanks to their dynamic capabilities, which allow them to respond to a constantly shifting business climate. So, DCs are procedures that help a company adjust its strategy and resources to maintain an edge in a dynamic market and outperform the competition.

DCs were first coined by Teece et al. (1997), who defined them as an organization's capacity to coordinate internal and external expertise in order to adapt to shifting circumstances. As markets form, collide, divide, change, and eventually perish, companies must use dynamic capabilities (DCs) to accomplish new resource configurations (Eisenhardt & Martin, 2000). Major contributions to DC theory were made by Teece (2007), who discussed the micro-foundations of the three dimensions of DC: sensing (opportunity recognition and evaluation), seizing (resource mobilisation to address opportunity and capture value), and transforming (ongoing renewal through reorganisation of the business's intangible and tangible assets).

Dynamic capabilities, or the "firm's capacity to integrate, create, and reconfigure internal and external skills to address quickly changing environments" (Teece et al., 1997, p. 516), are essential for pharmaceutical businesses to respond to shifts in the business climate. Therefore, competences relevant to maintaining a firm's competitive advantage are produced through the integration of resources and capabilities (Genç et al., 2013; Quaye & Mensah, 2019).

The three main tasks of crisis management tools are situational awareness, adaptive capability, and control of keystone vulnerabilities; they are all part of the traditional understanding of organisational resilience (McManus et al., 2008). In contrast, the fundamental nature of the idea of organisational resilience is marginalised if it is attributed simply to the capacity for crisis management. An organization's dynamic capacities may be reduced in a number of ways, as shown by the work of Teece (2017). One of them is a failure to scan for competitive possibilities, which can lead to a lack of awareness of threats and opportunities. Second-order organisational skills, as discussed by Danneels (2016), allow businesses to not only adapt to changing environments, but also capitalise on emerging technologies and untapped market opportunities. As we've already established, it's important to have a firm grasp on the many procedures, activities, operations, and routines that make up an organization's resilience if we're to fully grasp its definition as the ability to anticipate and adapt to adversity and uncertainty in the workplace.

Conceptual Review

Strategic leadership

Chief executive officers (CEOs), top management teams (TMTs), and the board of directors are the primary subjects of research and analysis in the field of strategic leadership (Lord et al., 2016; Strand, 2014). Strategic leadership is crucial to organisational success, but scholars and practitioners have not yet settled on a shared definition (Allio, 2013). House and Aditya (1997) describe strategic leadership as an activity that is aimed at providing organisations a purpose, despite the fact that different terms and separate frameworks have been employed in previous studies of strategic leadership. It is conceptualised by Ireland and Hitt (1999) as a set of distinctive abilities that includes the ability to plan ahead, to foresee potential problems, to remain adaptable, to think strategically, and to encourage and inspire employees to come up with novel solutions that will ultimately result in improved performance.

Boal and Hooijberg (2001) define it as the capacity to develop and sustain absorptive and adaptable capabilities, as well as the insight to recognise environmental possibilities. CEOs work together to establish broad strategies for the company's resource acquisition and aggregation (Bass, 2007). In their definition, Rowe and Nejad (2009) say it's the ability to make decisions with few organisational restrictions and the dissemination of common values and a clear vision to employees. Executives, board members, and other high-ranking managers are all examples of strategic leaders (compare Simsek et al., 2015 with O'Shannassy, 2016), who are "charged with making critical choices to facilitate transfer of information, influence, and resources that have implications for organisation performance" (Simsek et al., 2018).

Managerial Wisdom

Being able to think critically and practically under pressure is one definition of wisdom. It is founded on moral reasoning connected to one's own worldview (Jakubik & Mürsepp, 2022). Wisdom is a culmination of learning and experience, of thinking and being, and of knowing one's cultural setting (Sternberg & Karami, 2021). Managerial wisdom is based on the premise that managers shouldn't only let money be the sole influence in their decisions, actions, and practises; they should also be led by ethics, moral ideals, emotional intelligence, cultural and religious sensibility, and other intangibles (Jakubik, 2021). Consideration of one's actions' consequences for oneself and the natural world, as well as introspection and the application of lessons learned from the past, should all serve as guiding principles in the pursuit of shared objectives.

Bachmann et al. (2018) evaluate the literature on managerial wisdom from many disciplinary vantage points, including philosophy, theology, psychology, and management. One of their main points was that there is value in hearing from a variety of sources when considering the nature of knowledge. Action-oriented, integrative, normative, sociality-linked, pluralism-related, personality-related, cultural heritage-related, and limitation-related are only some of the qualities of managerial or practical wisdom that the authors assert and examine in their interdisciplinary review (Bachmann et al., 2018). They conclude that:

“Managerial wisdom improves managerial reasoning, decision making and acting concurrently (1) integrating and balancing several, often competing interests, rationalities, emotions, challenges and contexts, (2) orientating towards normative guidance of human flourishing, (3) considering the indispensable sociality of every human being as well as (4) today's multi-layered diversity in life and society, (5) acting appropriately and authentically in a self-aware manner, (6) rediscovering transmitted cultural and spiritual heritage, (7) being aware of the incompleteness of human existence and humble in the face of one's own achievements and capabilities and (8) targeting always realization in practice.”

Ethical Practices

Therefore, ethics establishes the desirability of the behaviour, policies, transactions, and practises of the people and their organisation based on the precepts of logic and generally established socio-moral-legal standards, as implied by the name "ethics" (Bhatti, 2007). By always doing what's right, businesses not only get internal motivation to do the right thing, but also maintain positive relationships with their staff and the surrounding community (Ukeme et al., 2018). Ethics are integral to an organization's ability to adapt to its environment, both internal and external (Kul, 2017). Because it affects employee productivity, reputation, and competitive advantage, an ethical practise has been connected to an organization's overall performance (Price, 2015; Rhodes & Wray-Bliss, 2012). However, there is a danger that organisations would use a written code of ethics as a means of controlling their employees without sufficiently integrating the principles depicted in the code (Wood, 2002). Ethical rules may only help to establish a practise of ethics if they are also lived and shown by the people in positions of authority and responsibility.

Organizational Resilience

The capacity to recover from adversity is commonly referred to as "resilience." The Latin word "resiliere," from which it derives its current meaning of "leaping back," is where the name originated (Klein et al., 2003; Paton & Johnston, 2006). The ability of an organisation to weather adversity is a multifaceted phenomena (Lee et al., 2013). There are a variety of ways in which businesses deal with uncertainty: (i) by strengthening their ability to withstand setbacks and keep operations running smoothly despite disruptions (Wicker et al., 2013); (ii) by gaining a thorough understanding of their operational environment, including potential threats and opportunities (McManus, 2008); (iii) by acting swiftly in response to unforeseen events and fostering a culture of continuous improvement (Lee et al., 2013); and (Vogus & Sutcliffe, 2007).

Adaptive Capacity

The capability to adjust to new conditions is known as adaptive capacity (Engle, 2011). All three of these concepts—adaptive capacity, vulnerability, and resilience—describe how a system is affected by change in terms of its susceptibility to and reactions to change (Gallop, 2006). The ability to change and adapt to new circumstances is key to a company's success (Zhu et al., 2017). To better deal with external factors like customers, company culture, and competitors, small business owners and managers can benefit from developing their adaptive capacity (Ali et al., 2017).

Innovativeness

Newness in systems, processes, goods, and services; behavioural change; environmental adaptability; and learning and knowledge development over time are all examples of innovativeness, as defined by Gilbert (2007). Rogers (1995) came to a similar conclusion, defining innovation as the extent to which an individual adopts new ideas ahead of others within a system. To reiterate, elik (2013) considers innovation to be an umbrella concept that encompasses a wide range of behaviours and attitudes, including but not limited to risk-taking, openness to new experiences, creativity, and thought leadership, and that people have varying exposure to and perspectives on innovation. A company's level of innovativeness may be measured by how actively it seeks out and implements novel ideas and creatively experiments with established methods in order to create and improve upon goods, services, and processes

(McDowell et al., 2018). According to Collins's Dictionary (2019), innovativeness is "the trait of being innovative," where inventive is defined as "introducing changes, new ideas, or innovation."

Methodology

This study used the cross-sectional survey research design. The study area – South West – is made up of six states. They include Ekiti State, Lagos State, Ogun State, Ondo State, Osun State, and Oyo State. The population in this investigation comprised the eighty-six (86) local pharmaceutical manufacturing firms in South-West Nigeria, inspected and approved by the National Agency for Food and Drug Administration and Control (NAFDAC). Of the eighty-six pharmaceutical firms in the region, Ekiti state has just one, Lagos State has 45, Ogun State has 24, Ondo State has 4, Osun State has 3, and Oyo State has 9. However, only 45 firms gave consent to participate in the study, representing 52.3% of the sampling frame. Information from the various firms that gave consent to be part of the study, revealed that there are a total of two hundred and twenty-five (225) owners, managers, and supervisors, which constituted the sample elements.

Data for analyzes was basically obtained from respondents with the use of a structured questionnaire. The questionnaire consist of twenty-four (24) statement items. It is divided into four sections. Section A comprises of eight (8) statement items detailing demographic characteristics of the respondents. While section B comprise of eight (8) items describing strategic leadership. Section C includes eight (8) statement items on organizational resilience.

The predictor variable is strategic leadership, and its dimensions are managerial wisdom and ethical practices. The dimensions was measured using an eight-point measuring instrument adapted from the works of Greene and Brown (2009), and Zappalà and Toscano (2020). Managerial Wisdom has four (4) items (e.g. I take the context of a situation into consideration when making decisions). Ethical practices has four (4) items (e.g., We set an example of how to do things the right way in terms of ethics). Respondents were asked to rate strategic leadership on a five-point Likert-like scale (e.g., strongly agree =5, to strongly disagree = 1).

The criterion variable is organizational resilience, and its measures are adaptive capacity and innovativeness. It was measured using an eight-statement instrument to be adapted from the works of Akgün et al. (2012) and Pallister and Foxall (1998). Adaptive capacity has four (4) items (e.g., The management systems in this organization are flexible enough to allow us to respond quickly to changes in our markets). Innovativeness also has four (4) statement items (e.g., We frequently seek out new ways to do things in our organization). Respondents were required to rate their organizations' resilience on a five-point Likert scale (e.g., strongly agree = 4, to strongly disagree = 1).

The data analysis techniques that was used for the study was basically descriptive statistical measures which include tables, frequencies, and simple percentages, and the hypotheses were tested using the structural equation modelling which is a parametric test and measures the strength and direction of association between variables.

Results and Discussion

Data Analysis

The study adopted reflective indicator, and reflective measurement model approach. Items on the survey which were predicted to measure a specific construct were grouped and measurement model analyzes were carried out with the Amos Version 22.0.0 program. The Measurement Model is a two-step process. Step one involves the examination of the goodness of fit indices after the indicators have been loaded into the latent factor/construct. The second step involves the interpretation of the parameter estimates if the goodness of fit indices meet the criteria suggestions provided in Hu and Bentler (1999), which states that acceptable model fit is defined by the following criteria: RMSEA (≤ 0.6), SRMR (≤ 0.8), CFI (≥ 0.95), TLI (≥ 0.95), GFI (≥ 0.90), and AGFI (≥ 0.90).

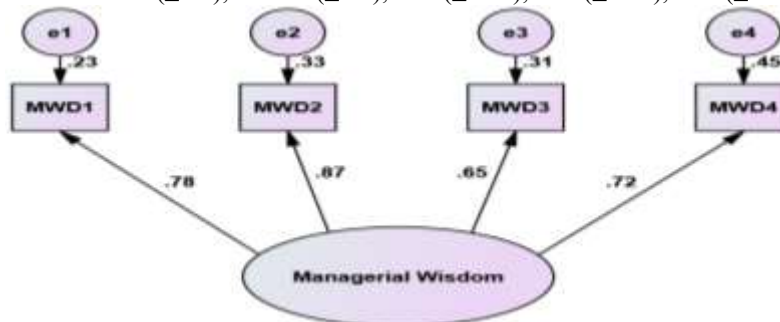


Figure 1: Measurement Model of Managerial Wisdom

Table 1: First Order Measurement Model Analysis of Managerial Wisdom

Model	Chi-Square(df), Significance	NFI	TLI	CFI	RMSEA	Variable	Factor Loading Estimates	Error VAR
Managerial Wisdom	(5df) =36.26, P<0.002	1.05	1.03	1.00	0.08	MWD1	0.780	0.23
						MWD2	0.874	0.33
						MWD3	0.653	0.31
						MWD4	0.724	0.45

Source: Amos Version 22.0.0 output on research data, 2023

The indicators MWD1, MWD2, MWD3, and MWD4 had factor loadings of 0.78, 0.87, 0.65 and 0.72, respectively and error variances of 0.23, 0.33, 0.31 and 0.45, respectively. The average variance extracted (AVE) from the construct is 0.76. Thus, $AVE = 0.76 \geq 0.5$. Estimated standardized parameters were statistically significant. These parameters are consistent with the position that these are reliable indicators of the construct of managerial wisdom. The results of the goodness of fit indices indicated acceptable fit to the data for one-factor model (chi-square (5df) =36.26, $p < 0.002$, RMSEA=0.08, CFI=1.00, NFI=1.05, TLI=1.03). Table 1 summarized the goodness of fit indices, the factor loading estimates and the error variances. Factor loading estimates revealed that all four indicators were related to latent factor managerial wisdom and were statistically significant. According to Brown (2006), completely standardized factor loadings of 0.3 (or 0.4) and above are commonly used to operationally define a “salient” factor loading.

The second sub-scale of strategic leadership is ethical practices. The sub-scale had four items. The model to be tested postulates that the four observed variables/indicators (ETP1 - ETP4) as indicated by the four rectangles, measure the construct/latent factor of ethical practices of the organization, which is indicated by ellipse. The model is presented schematically in figure 1. Based on a priori specification of parameters, a one factor model was specified in which the indicators, “WE set an example of how to do things the right way in terms of ethics (ETP1)”; “We define success not just by results but also the way that they are obtained (ETP2)”; “We discipline employees who violate ethical standards to get us results (ETP3)”; and “Our decisions are always fair and balanced decisions (ETP4)”; and had a range of 1 to 5, with higher scores reflecting higher levels of ethical practices.

The population variance-covariance matrix was analyzed using Amos Version 22.0.0, and a maximum likelihood minimization function (factor loadings and error variances are provided in table 1). Goodness of fit was evaluated using the root mean square error of approximation (RMSEA), comparative fit index (CFI), Tucker-Lewis index (TLI), probability of close fit (PCLOSE), and normed fit index (NFI). Guided by suggestions provided in Hu and Bentler (1999), acceptable model fit was defined by the following criteria: RMSEA (≤ 0.6), CFI (≥ 0.95), TLI (≥ 0.95), PCLOSE ≥ 0.5 , and NFI ≥ 0.95 . Multiple indices were used because they provide different information about model fit (i.e. absolute fit, parsimony correction and comparative fit). These indices provide a more reliable and conservative evaluation of solution; when used together. According to Brown (2006), completely standardized factor loadings of 0.3 (or 0.4) and above are commonly used to operationally define a “salient” factor loading.

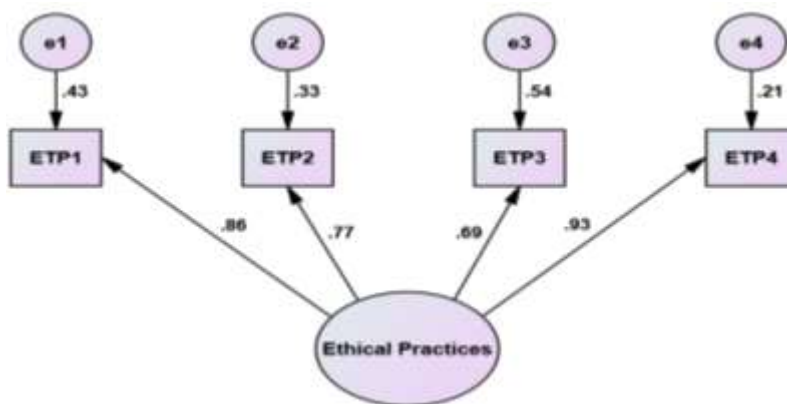


Figure 2: Measurement Model of Ethical Practices

Table 2: First Order Measurement Model Analysis of Ethical Practices

Model	Chi-Square(df), Significance	NFI	TLI	CFI	RMSEA	Variable	Factor Loading Estimates	Error VAR
Ethical Practices	(2df) =22.71, P<0.000	1.02	0.96	1.07	0.09	ETP1	0.864	0.43
						ETP2	0.773	0.33
						ETP3	0.691	0.54
						ETP4	0.932	0.21

Source: Amos Version 22.0.0 output on research data, 2023

The indicators ETP1 – ETP4 had factor loadings of 0.86, 0.77, 0.69 and 0.93, respectively and error variances of 0.43, 0.33, 0.54 and 0.21, respectively. The average variance extracted (AVE) from the construct is 0.81. Thus, $AVE = 0.81 \geq 0.5$. These parameters show that adding a covariance between the error terms for ETP1, ETP2, ETP3 and ETP4 improved the fit. These parameters are consistent with the position that these are reliable indicators of the construct of ethical practices. The results of the goodness of fit indices indicated strong model fit to the data for one-factor model (chi-square (2df) = 22.71, RMSEA = 0.09, CFI = 1.07, NFI = 1.02, and TLI = 0.96). However, the p value, $p < 0.000$ indicated acceptable fit, as the model was over-identified with two degree of freedom. Table 2 summarized the goodness of fit indices, the factor loading estimates and the error variances. Factor loading estimates revealed that the four indicators were strongly related to latent factor ethical practices and were statistically significant. According to Brown (2006), completely standardized factor loadings of 0.3 (or 0.4) and above are commonly used to operationally define a “salient” factor loading.

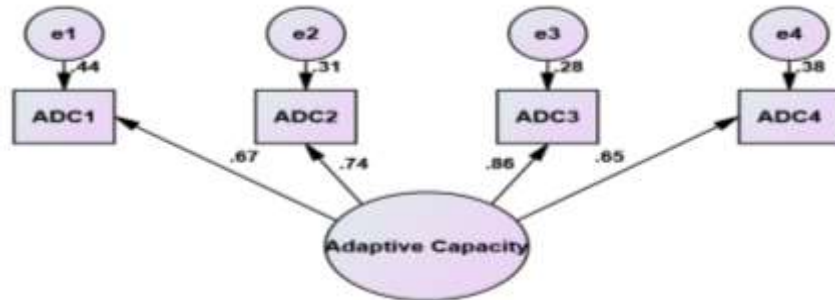


Figure 3: Measurement Model of Adaptive Capacity

Table 3: Measurement Model Analysis of Adaptive Capacity

Model	Chi-Square(df), Significance	NFI	TLI	CFI	RMSEA	Variable	Factor Loading Estimates	Error VAR
Adaptive Capacity	(5df) =86, P<0.000	0.95	1.01	1.01	0.16	ADC1	0.670	0.41
						ADC2	0.743	0.31
						ADC3	0.864	0.28
						ADC4	0.653	0.38

Source: Amos Version 22.0.0 output on research data, 2023

The indicators ADC1 – ADC4 had factor loadings of 0.67, 0.74, 0.86 and 0.65, respectively and error variances of 0.41, 0.31, 0.28 and 0.38, respectively. The average variance extracted (AVE) from the construct is 0.73. Thus, $AVE = 0.73 \geq 0.5$. All freely estimated standardized parameters were statistically significant. The results of the goodness of fit indices indicated overidentified fit to the data for one-factor model (chi-square (5df) = 86, $p < 0.000$, CFI=1.01, NFI=0.95, TLI=1.01, RMSEA=0.16). Table 3 summarized the goodness of fit indices, the factor loading estimates and the error variances. Factor loading estimates revealed that the four indicators were strongly related to latent factor adaptive capacity and were statistically significant. These parameters are consistent with the position that these are reliable indicators of the construct of adaptive capacity.

The second sub-scale of organizational resilience is innovativeness. The sub-scale had four items. The four items were combined to ensure innovativeness which entails the degree to which an individual adopts new ideas relatively earlier than others within a system. The four items were taken from the works of Pallister and Foxall (1998). The model to be tested postulates that the four observed variables/indicators (INN1-INN4) as indicated by the four rectangles, measure the construct/latent factor of innovativeness of the organization, which is indicated by ellipse. The model is presented schematically in figure 4.

Based on a priori specification of parameters, a one factor model was specified in which the indicators, “We frequently seek out new ways to do things in our organization (INN1)”; “We frequently improvise methods for solving a problem when an answer is not apparent (INN2)”; “We consider ourselves to be creative and original in our way of thinking and doing things (INN3)”; “We find it stimulating to be original in our thinking and way of doing things (INN4)”; and had a range of 1 to 5, with higher scores reflecting higher levels of innovativeness. The population variance-covariance matrix was analyzed using Amos Version 22.0.0, and a maximum likelihood minimization function (factor loadings and error variances are provided in table 4). Goodness of fit was evaluated using the root mean square error of approximation (RMSEA), comparative fit index (CFI), Tucker-Lewis index (TLI), probability of close fit (PCLOSE), and normed fit index (NFI).

Guided by suggestions provided in Hu and Bentler (1999), acceptable model fit was defined by the following criteria: RMSEA (≤ 0.6), CFI (≥ 0.95), TLI (≥ 0.95), PCLOSE ≥ 0.5 , and NFI ≥ 0.95 . Multiple indices were used because they provide different information about model fit (i.e. absolute fit, parsimony correction and comparative fit). These indices provide a more reliable and conservative evaluation of solution; when used together. According to Brown (2006), completely standardized factor loadings of 0.3 (or 0.4) and above are commonly used to operationally define a “salient” factor loading.

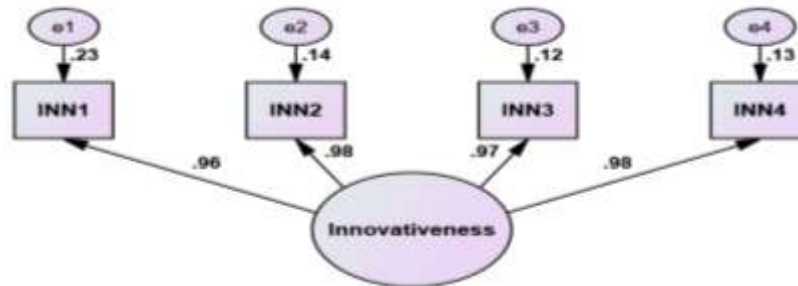


Figure 4: First Order Measurement Model of Innovativeness

Table 4: First Order Measurement Model Analysis of Innovativeness

Model	Chi-Square(df), Significance	NFI	TLI	CFI	RMSEA	Variable	Factor Loading Estimates	Error VAR
Innovativeness	(8df) =31, P<0.005	1.00	1.02	0.97	0.27	IN1	0.960	0.23
						IN2	0.983	0.14
						IN3	0.971	0.12
						IN4	0.983	0.13

Source: Amos Version 22.0.0 output on research data, 2023

The indicators INN1-INN4 had factor loadings of 0.960, 0.983, 0.971 and 0.983, respectively and error variances of 0.23, 0.14, 0.12 and 0.13, respectively. The average variance extracted (AVE) from the construct is 0.97. Thus, $AVE = 0.97 \geq 0.5$. These parameters are consistent with the position that these are reliable indicators of the construct of innovativeness. The figure 4 above, depicts the complete specification of the one factor model. The measurement model contained no double-loading and all measurement error was presumed to be uncorrelated. The model was overidentified with eight degree of freedom (8df). Each of the goodness of fit indices suggested that one factor model fit the data, (chi-square (8df) =10, $p < 0.005$, CFI=0.97, NFI=1.00, TLI=1.02, RMSEA=0.27). Factor loading estimates revealed that the four indicators were strongly related to latent factor innovativeness and were statistically significant. According to Brown (2006), completely standardized factor loadings of 0.3 (or 0.4) and above are commonly used to operationally define a “salient” factor loading.

Correlations and Construct (Convergent and Discriminant Validity)**Correlations:**

Correlations among managerial wisdom, ethical practices, adaptive capacity and innovativeness, are shown in Table 7. The correlation coefficients indicate that all constructs are significant at the 0.01 levels (2-tailed). The strongest bivariate correlation is 0.744 and is between innovativeness and adaptive capacity, while the lowest bivariate correlation is 0.561 and is between innovativeness and managerial wisdom. There was no correlation above 0.85 and therefore, multicollinearity was not an issue.

Construct Validity: (Convergent and Discriminant Validity)**Table 5: Average Variance Extracted (AVE) and Square Root of AVE (RAVE) for Strategic Leadership**

Item	Latent Factor	Loading	Square Loading	AVE	RAVE
MWD1	Managerial Wisdom	0.780	0.608	0.581	0.762
MWD2	Managerial Wisdom	0.874	0.764		
MWD3	Managerial Wisdom	0.653	0.430		
MWD4	Managerial Wisdom	0.724	0.524		
ETP1	Ethical Practices	0.864	0.746	0.673	0.820
ETP2	Ethical Practices	0.773	0.600		
ETP3	Ethical Practices	0.691	0.477		
ETP4	Ethical Practices	0.932	0.869		

Source: Amos Version 22.0.0 output on research data, 2023

Table 6: Average Variance Extracted (AVE) and Square Root of AVE (RAVE) for Organizational Resilience

Item	Latent Factor	Loading	Square Loading	AVE	RAVE
ADC1	Adaptive Capacity	0.670	0.449	0.544	0.740
ADC2	Adaptive Capacity	0.743	0.552		
ADC3	Adaptive Capacity	0.864	0.750		
ADC4	Adaptive Capacity	0.653	0.426		
INN1	Innovativeness	0.960	0.922	0.950	0.975

INN2	Innovativeness	0.983	0.966
INN3	Innovativeness	0.971	0.943
INN4	Innovativeness	0.983	0.966

Source: Amos Version 22.0.0 output on research data, 2023

Table 7: Correlations, Average Variance Extracted (AVE) and Square Root of AVE

Variable	MWD	ETP	ADC	INN	AVE	Sq. Root of Ave
MWD	1.0	0.701	0.723	0.561	0.581	0.762
ETP	0.701	1.0	0.568	0.706	0.673	0.820
ADC	0.723	0.568	1.0	0.744	0.544	0.740
INN	0.561	0.706	0.744	1.0	0.950	0.975

Source: Amos Version 22.0.0 output on research data, 2023

Where:

MWD = Managerial Wisdom, ETP = Ethical Practices, ADC = Adaptive Capacity, INN = Innovativeness

The results in Tables 5, 6 and 7 show that all variables have average variance extracted (AVE) values exceeding the 0.50 threshold recommended by Fornell and Larcker (1981). The lowest AVE is 0.544 generated by adaptive capacity latent variable, while the highest AVE is 0.950 generated by innovativeness latent construct. In addition, all the degrees of freedom, are greater than zero, thus, all the models are over-identified. Therefore, with the AVE>0.5 and the standardised estimates (factor loadings) >0.7, it is necessary and sufficient to conclude that the model, has evidence of convergent validity. Table 7 reveals that all the square roots of the average variance extracted are significantly higher than the correlations between the constructs, thus this confirms that each construct is distinct from one another. In view of this result, it is necessary and sufficient to conclude that the model, has evidence of discriminant validity (Fornell & Larcker, 1981; Hair Jr et al., 2013).

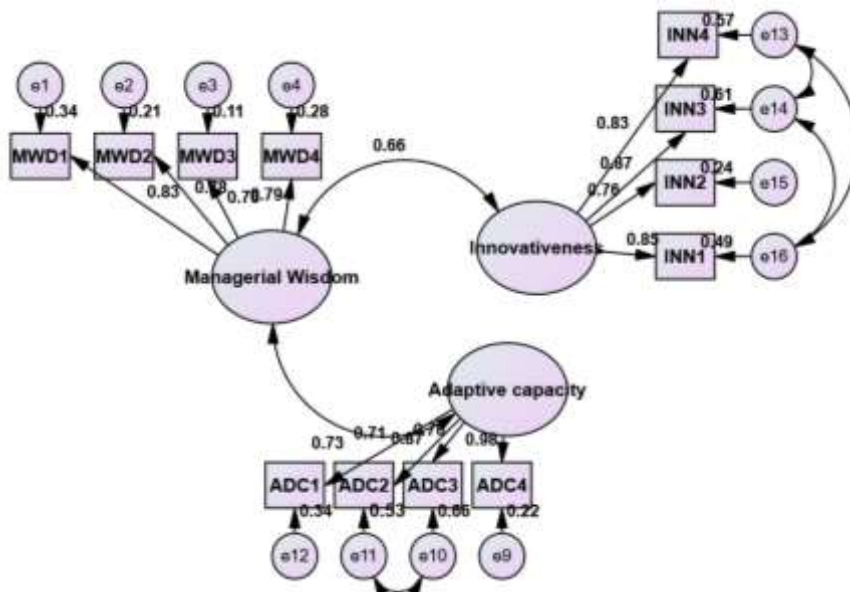


Figure 5: Structural Model of Hypotheses 1 and 2

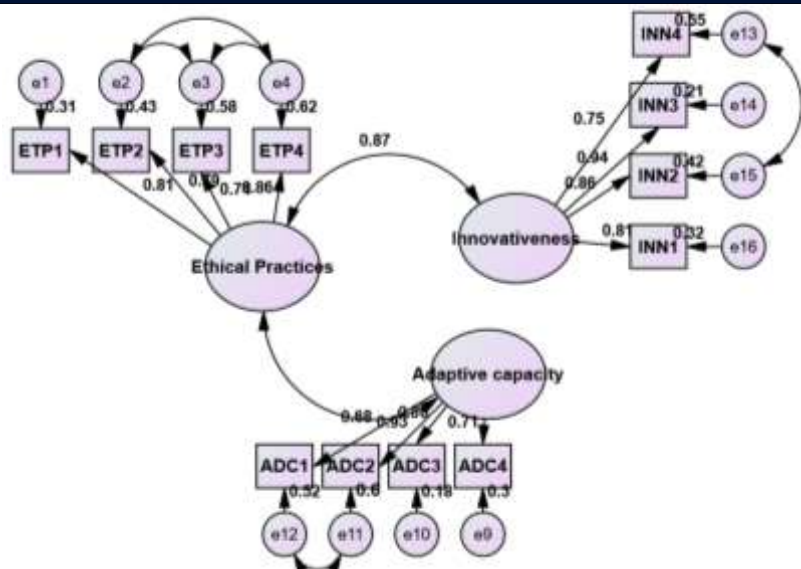


Figure 6 Structural Model of Hypotheses 3 and 4

Test of Hypotheses

Table 8: Result of Standardized and Unstandardized Regression Estimate of the Model

S/N	Hypotheses	Relationship	Standardised Estimate (Beta value) > 0.5; or ≥ 0.7	Critical Ratio (C.R) the t-value) ≥ 1.96	P	Remark	Decision
1	MWD → ADC (Hypothesis 1)	Managerial wisdom and Adaptive Capacity	0.832	2.373	0.001	Significant	Not Supported
2	MWD → INN (Hypothesis 2)	Managerial Wisdom and Innovativeness	0.634	2.947	0.000	Significant	Not Supported
3	ETP → ADC (Hypothesis 3)	Ethical Practices and Adaptive Capacity	0.744	4.371	0.000	Significant	Not Supported
4	ETP → RBS (Hypothesis 4)	Ethical Practices and Robustness	0.713	2.933	0.000	Significant	Not Supported
5	ETP → INN (Hypothesis 5)	Ethical Practices and Innovativeness	0.814	5.643	0.001	Significant	Not Supported

Source: Amos Version 22.0.0 output on research data, 2023

Interpretation of Results (Inferential Analysis)

This section gives attention to the interpretation of the results concerning the inferential data analysis. Four hypotheses were analyzed in two clusters. The analysis was based on significance criteria of $\beta > 0.5$ or 0.7 (Byrne, 2006); $t\text{-value} > 0.7$ (Hair et al., 2014) and $p < 0.05$. Results on each cluster of the hypothesis.

The first hypothesis (H_{01}), states that there is no significant relationship between managerial wisdom and adaptive capacity. However, table 8 indicates that managerial wisdom has a positive and significant relationship with adaptive capacity of pharmaceutical companies in South-West Nigeria. ($\beta = 0.832$, $CR = 2.373$, $p < 0.005$). Thus, H_{01} was not supported. The evidence presents managerial wisdom as a strong predictor of adaptive capacity of pharmaceutical companies in South-West Nigeria. Statistically, it shows that when managerial wisdom goes up by 1 standard deviation, adaptive capacity goes up by 0.832 standard deviation. In other words,

when managerial wisdom goes up by 1, adaptive capacity goes up by 2.373 units. The regression weight for managerial wisdom in the prediction of adaptive capacity is significantly different from zero at the 0.005 level (two-tailed).

The second hypothesis (H_{02}), states that there is no significant relationship between managerial wisdom and innovativeness. However, table 8 also suggests that managerial wisdom has a positive and significant relationship with innovativeness of pharmaceutical companies in South-West Nigeria ($\beta=0.634$, $CR=2.947$, $p<0.005$). Thus, H_{02} was not supported. This means that the presence of managerial wisdom, in pharmaceutical companies in South-West Nigeria, will lead to innovativeness. Statistically, it shows that when managerial wisdom goes up by 1 standard deviation, innovativeness goes up by 0.634 standard deviation. In other words, when managerial wisdom goes up by 1, innovativeness goes up by 2.947 units. The regression weight for managerial wisdom in the prediction of innovativeness is significantly different from zero at the 0.005 level (two-tailed).

The third hypothesis (H_{03}), states that there is no significant relationship between ethical practices adaptive capacity. However, table 8 indicates that ethical practices has a positive and significant relationship with adaptive capacity of pharmaceutical companies in South-West Nigeria ($\beta=0.744$, $CR=4.371$, $p<0.005$). Thus, H_{03} was not supported. The evidence presents ethical practices as a strong predictor of adaptive capacity of pharmaceutical companies in South-West Nigeria. Statistically, it shows that when ethical practices go up by 1 standard deviation, adaptive capacity goes down by 0.744 standard deviation. In other words, when ethical practices go up by 1, adaptive capacity goes up by 4.371 units. The regression weight for ethical practices in the prediction of adaptive capacity is significantly different from zero at the 0.005 level (two-tailed). The results indicate that ethical practices drive the adaptive capacity of pharmaceutical companies in South-West Nigeria.

The fourth hypothesis (H_{04}), states that there is no significant relationship between ethical practices and innovativeness. However, table 8 also suggests that ethical practices has a significant relationship with innovativeness of pharmaceutical companies in South-West Nigeria ($\beta=-0.814$, $CR=5.643$, $p<0.005$). Thus, H_{04} was not supported. This means that the ethical practices of pharmaceutical companies in South-West Nigeria, will lead to their innovativeness. Statistically, it shows that when ethical practices go up by 1 standard deviation, innovativeness goes down by 0.814 standard deviation. In other words, when ethical practices go up by 1, innovativeness goes up by 5.643. The regression weight for ethical practices in the prediction of innovativeness is significantly different from zero at the 0.005 level (two-tailed).

Discussion of Findings

The outcome of the study reveals that there is a significant positive correlation between strategic leadership and organizational resilience.

Managerial Wisdom and Adaptive Capacity (H_{01})

The outcome of the analysis revealed a significant positive association between managerial wisdom and adaptive capacity. This is in alignment with extant studies. For example, Lin (2004) emphasised the growing awareness among business owners, managers, and supervisors with managerial wisdom of the need to rapidly learn and adapt in order to not only respond to a constantly changing, dynamic, and complex environment but also to be ready to deal with threats and opportunities they had never faced before. Put another way, they need to adapt and think forward (Lin, 2004). Organizational wisdom is revealed as a complex adaptive system that grows, given conducive conditions, in Hays' (2007, 2010) model of management wisdom. This model depicts the fluid and dynamic character of an organisation that proactively learns, adapts, anticipates, and initiates. Findings from this study corroborate the views of Lin (2004) and Hays (2007, 2010) that there is a favourable correlation between management experience and flexibility.

Managerial Wisdom and Innovativeness (H_{02})

The findings of the study on hypothesis three show a very significant and positive association between managerial wisdom and innovativeness. This finding is in consonance with Akgün and Kirçovali's (2015) argument that managerial wisdom has influence on firm innovativeness. In their work, "*organizational wisdom and its impact on firm innovation and performance*", Akgün and Kirçovali (2015) assert that in a highly turbulent, unpredictable, and dynamic business environment, companies will rely heavily on the management knowledge of their leaders in order to innovate and succeed. So, the degree to which wise management influences a company's propensity to innovate increases as the degree of environmental unpredictability rises. This supports Wright's (2005) contention that wisdom practises in management lead individuals to accept the limitations of their own knowledge and the impossibility of fully comprehending the world around them. By admitting that they do not know, individuals may avoid the pitfalls of both naive confidence and the paralysing fear and indecision that arise from acting too cautiously. In this view, management wisdom practises enhance individuals' capacity for learning and decision-making to increase the competitive advantage of businesses. Thus, the findings provide additional empirical support for the presence of a large positive link between management wisdom and innovativeness.

Ethical Practices and Adaptive Capacity (H_{03})

The findings on hypothesis seven is that a significant positive association exist between ethical practices and adaptive capacity. This outcome is consistent with extant studies. In situations characterised by acute ethical challenges, for instance, ethics training did not improve organisations' reaction and recovery efforts, as shown by the findings of a research by Shuja and Abassi (2015) on ethical

practises. To counter this, Tamunomiebi (2018) conducted research into the correlation between ethical practises and organisational resilience in Bayelsa State's tertiary health institutions. Tertiary health institutions in Bayelsa State were shown to have a favourable and statistically significant relationship between ethics training and organisational resilience. The research concluded that managers of universities should provide ethics training to all employees so that they may develop a common understanding of the institution's context and respond more effectively to emergencies and other disruptive situations. The findings of this study confirm that ethical practises have a substantial effect on the flexibility of businesses.

Ethical Practices and Innovativeness (H₀₄)

The result of the hypothesis test on the relationship between ethical practises and innovativeness was positive. Leaders in organisations, according to the available evidence, may foster an environment conducive to innovation, provide workers the freedom to express their creative potential, and ultimately lead to new product and service developments (Demircioglu & Berman, 2019; Gumusluoglu & Ilsev, 2009). Hassan (2015) argues that managers are more likely to be regarded and trusted if they are ethical. Ethical managers are transparent, honest, and trustworthy, and they operate in the best interest of the organisation and society. According to Demircioglu and Audretsch (2018), when leaders are held in high regard, they inspire more creativity and cooperation within their teams. Therefore, the findings of this study are consistent with the literature's emphasis on a positive and substantial link between ethical practises and creativity.

Conclusion and Recommendations

Consequent upon the outcome of the results and discussions, with reference to the aim and objectives of the study, we conclude that strategic leadership drives organizational resilience of pharmaceutical companies in South-West Nigeria. Thus, the following recommendations are made:

- i. Owners, managers, and supervisors of pharmaceutical firms should develop managerial wisdom to help build a resilient company. To accomplish this, businesses should commit to regular management development training and learning, as this will provide the necessary managerial wisdom to effectively pick cues from industry events, predict the possible direction of the industry, and reconfigure processes and resources (both human and material) to ensure the business remains ahead of any eventualities.
- ii. Regular ethics training should be undertaken by the management of pharmaceutical enterprises in order to improve the abilities of personnel at all levels, increase the company's resilience in the face of shocks, and foster a culture of shared awareness and weakness management.

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