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Organizational Dynamic Capabilities and Corporate Resilience of Selected Parastatals in Rivers State.

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Abstract: *This study theoretically examined the relationship between organizational dynamic capabilities and corporate resilience of selected parastatals in Rivers State. Given the dimensions of organizational dynamic capabilities relates such as sensing capability, learning capability and integrating capability with the measures of corporate resilience such as agility. Previous published materials were reviewed. It was observed that the dimensions of organizational dynamic capabilities (sensing capability, learning capability and integrating capability do relate with the measure of corporate resilience (Agility). Hence, it was concluded that dimensions of organizational dynamic capabilities in terms of sensing capability, learning capability and integrating capability helps in enhancing measure of corporate resilience (Agility). The study thus recommended among others that the management of the selected parastatals should constantly monitor the technological and market trends to enhance their sensing capability and thus boost their dynamic capability.*

Key Worlds: Organizational Dynamic Capabilities, Sensing Capability, Integrating Capability, Learning Capability, Corporate Resilience, Agility.

Introduction

Globally, businesses are faced with challenges as a result of the volatility and instability in the dynamic business world. Business organizations are frequently faced with an unprecedented and growing number of possible disruptions to their current state; thus, notable businesses usually fail if proper risk management models to adopt scalable resilience metrics are not employed (Akgun, 2008). In line with the above assertion, Annareui et al (2020) opined that the present-day firms operate in environment characterized with unprecedented changes arising from competitive forces as well as other factors within the business sphere. The study added that firms' survival and sustainability require being equipped with indispensable capabilities that will allow for strategic response to market forces. In this present business domain, which is characterized with high proliferation in technology and high business failures, only organizations that possess high resilience capability are most likely to withstand the turbulent moment and imponderable varieties in the business world. Furthermore, firms apply laid down principles that guide their mechanisms for survival and fight against disruptions that may appear to cut short their corporate existence. Similarly, Stronen et al. (2017) noted that a firm's survival depends more on the activities carried out before such a disruption occurs than on the actions it takes as the disruption surfaces making corporate resilience a critical aspect of business management. Corporate resilience is the ability a firm has to continue its function and excel despite the difficulties it faces within the complex business environment. A high degree of corporate or firms' resilience strengthens business stability, competitiveness, profitability and shareholders' value (Hearnshaw, Wilson 2013). In other words, resilience as an organizational attribute, enables businesses to withstand turbulent

elements within the business environment and boost ability to survive the test of time. In alignment with the above assertion, the absence of corporate resilience makes it very difficult for organizations to operate effectively when faced with uncertainties in the industry especially with the presence of highly competitive forces.

Considering the volatile nature of the business domain, it is important that organizations possess some dynamic capabilities in order to operate more effectively and attain their desired goals. The dynamic capabilities of organization deal with the way that organizations identify opportunities, develop new knowledge, internal dissemination of information and launch new services or products in the market (Teece, 2011). Amin, Budiastuti, So and Arief (2019) contended that organizational dynamic capability help boost the performance of organization by enabling the firm to identify and effectively respond to the opportunities by developing new processes, services and products.

The capability of organizations, then from rivalries in the industry (Stronen et al., 2017). The authors argued that dynamic capabilities are a higher-order capability to build/create, integrate and effectively reconfigure operational capabilities. Teece, Pisano and Shuen (1997) did an extensive work on the dynamic capabilities of organization where they defined dynamic capability as the strategic and organizational routines, utilised by managers in order to alter firms resource base and renew capabilities so as to create or build new sources of competitive edge. Wang et al (2019) defined organizational dynamic capabilities as the firm's ability to effectively integrate, build and reconfigure internal and external competencies to respond to the rapidly changing business environment. The authors further noted that organizational dynamic capability is the firms learned and stable pattern of collective activities by which the firm systematically create and modify its operating routines with the aim of boosting effectiveness. It is paramount that organizations enhance their dynamic capabilities in order to cope with environmental turbulence (Wulandari, Supriyono, Muluk & Setyowati, 2021).

Over the years, several scholars have examined ways to enhance the resilience of organizations using various constructs. For instance, Ahiauzu and Jaja (2015) examined process innovation and organizational resilience in Public Universities in South-South Nigeria with focus on process innovation. The study made efforts to explore corporate resilience and identified three dimensions- situation awareness, keystone vulnerability, and adaptive capacity yet the study was domiciled on universities leaving out manufacturing firms. Amah and Onwughalu (2017) examined ambidexterity and organizational resilience of telecommunication firms in Port Harcourt, Rivers State but effort was placed on ambidexterity which were measured using exploration and exploitation ambidexterity and there was no effort to measure resilience which also causes a lacuna. Similarly, Sylva and Umoh (2018) made ample effort in exploring how resilience of organization can be enhanced from the stand point of management information system capability in the Nigerian Aviation Industry. Despite several scholarly work, there are scanty work on how organizational dynamic capabilities relates with corporate resilience.

Statement of Problem

Parastatals all over the world especially in fast developing States like Rivers State have been highly affect by the various environmental dynamics and this issue has worsened owing to the outbreak of the Corona Virus Disease (COVID-19). The problem of poor organizational resilience has affected their resilience capacity such as agility. The unexpected economic downturn has changed current organizational narratives which has also hampered business existence and made corporate resilience critical. Poor resilience ability of firms has manifested in low adaptive size, poor profitability, poor competitive advantage, low agility and ultimately the liquidation of the firm. Poor organizational agility leads to inability to stay abreast and adapt to unfavourable realities. Low organizational resilience could also affect the performance and competitiveness of the firms. The

high rate at which firms fizzle out after few years of inception has made the issue of resilience more critical thereby making business survival more herculean for managers to handle. Similarly, Okuwa et al. (2016) observed that the idea behind striving for corporate resilience is to enable organizations make away with negative effective of sudden economic crises, adapt appropriate to the current changes and survive the dynamic business forces. The problem of low resilience ability of firms still persists despite all attempts in previous years to address the issue. Hence, this study examined how organizational dynamic capabilities relates with corporate resilience of selected public parastatals in Rivers State.

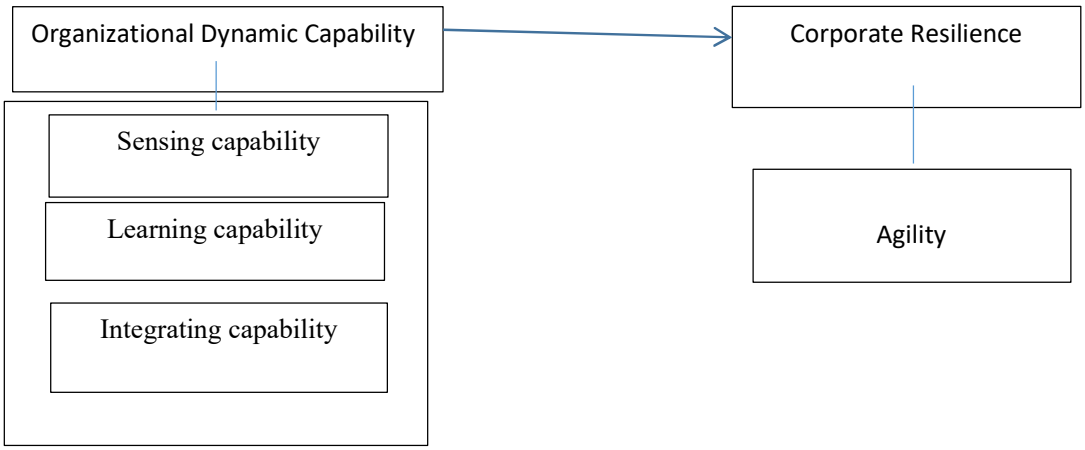

Figure 1.1: Conceptualization on Organizational dynamic capability and Corporate Resilience
Source: Researcher's Desk 2022.

Aim and Objectives of the Study

The aim of this study was to examine the relationship between organizational dynamic capability and corporate resilience. The specific objectives are to:

i. Examine the relationship between sensing capability and agility of 8 selected parastatals in Rivers State.
ii. Examine the relationship between learning capability and agility of 8 selected parastatals in Rivers State.
iii. Examine the relationship between integrating capability and agility of 8 selected parastatals in Rivers State.

Significance of the Study

This study will be significant to public parastatals in Rivers State because it is going to reveal the extent to which organizational dynamic capabilities relate with corporate resilience. This study will also be relevant to various public parastatals because it is going to proffer recommendations that will help enhance the resilience of the public parastatals. This study will also be of high relevance to scholars and future researchers because it is going to enrich the wealth of knowledge or add value to the existing body of knowledge on the various variables under study and thus serve as reference Material to scholars and future scholars.

Conceptual Review

Concept of organizational Dynamic Capabilities

According to Teece et al. (1997), are a company's capacity to incorporate, develop, and reconfigure internal and external competences in order to respond to rapidly evolving conditions. Ability (or

capacity) as well as processes or routines have been described as dynamic capabilities. Organizational capabilities are ingrained in the routines, frameworks, and processes of the enterprise. These routines can be seen in the organization 's operations, processes, cultures, and senior leadership's attitude, to name a few. Further explanation, "capabilities" highlights the critical role of strategic management in adapting, integrating, and recon-figuring internal and external organizational expertise, tools, and functional competences to meet the evolving environment's requirements. They contend that dynamic capabilities are largely possessed by an organization 's senior management staff, but are often influenced by the hierarchical procedures, programs, and mechanisms in place to control the company's operations.

According to Eisenhardt and Martin (2000), are made up of recognizable and basic routines. They further argued that dynamic capabilities are the precursor operational and strategic routines from which managers change their resource base - adding and shedding resources, integrating and recombining them - in order to make new value-creating techniques. These new techniques then serve as the catalysts for the development, evolution, and recombination of other tools into new competitive advantages. They further describe dynamic capabilities as a firm's processes that utilize resources - specifically, processes for integrating, re-configuring, acquiring, and removing resources - to balance and even create market transition. They conclude that firms' dynamic capabilities are the operational and strategic routines that enable them to accomplish new resource configurations.

Researchers have made an effort to distinguish between dynamic and ordinary capabilities. Dynamic and ordinary capabilities, according to Helfat and Winter (2011), serve different roles and provide different outcomes. An ordinary capability allows a company to conduct an operation on a continuous basis using more or less the same methods on the same scale, while promoting current goods and services with the same customer population; it is "ordinary" in the sense of preserving the status quo. Dynamic capability, according to Helfat (1997), is an organization 's ability to dynamically build its resource base and execute subsequent extensions and modifications. Dynamic capabilities are organizational structures that can alter current roles, resulting in improvements in performance and competitive advantage. Dynamic capabilities, according to Zahra and George (2002), are basically change-oriented capabilities that assist companies in redeploying and reconfiguring their capital base to satisfy changing customer needs and competitors' strategies. Dynamic capabilities, according to Zollo and Winter (2002), are mastered and consistent patterns of group operation from which an enterprise routinely generates and modifies its working routines in the direction of greater effectiveness. Dynamic capabilities, according to Winter (2003), are those that work to expand, alter, or establish ordinary capabilities.

At the heart of dynamic capabilities is the capacity of senior management to capture resources by orchestrating and integrating all new and current tools to resolve inertia and course dependencies. These capabilities, which are often referred to as high-level routines or processes (Winter, 2003; Zott, 2003) or routines to learn new routines (Eisenhardt & Martin, 2000), are now widely recognized as a key component of long-term competitive advantage. This viewpoint emphasizes the importance of senior management teams in taking substantive decisions that form long-term competitive advantage. The firm's potential to succeed in the new market is reflected in its existing capabilities. The goal for senior leaders is to cultivate and optimize these assets whilst still being prepared to reconfigure them when circumstances change.

The talents and abilities of a company to leverage its wealth are referred to as Capabilities (Wheelen et al., 2018; Robbins & Coulter, 2016). These provide business processes and day-to-day operations that coordinate and track resource usage in order to convert inputs into outputs. Dynamic capabilities are described as capabilities that are continually updated and reconfigured in order to make them more adaptable in unpredictable environments (Wheelen et al., 2018). Dynamic capabilities aid in the integration and transformation of (static) tools into new services (Makkonen et al., 2014).

In moderately dynamic markets - markets where transition happens frequently but through roughly stable and sequential paths - Eisenhardt and Martin (2000) investigate market dynamism and conclude that successful dynamic capabilities depend heavily on established business knowledge. Managers use their current implicit knowledge and codes of thumb to assess circumstances, then schedule and coordinate their operations in a reasonably orderly manner (Burns and Stalker, 1966). Furthermore, in these markets, managers should create effective processes that are predictable and reasonably stable, as well as processes that follow a linear path from analysis to execution. Dynamic capabilities are grouped into three categories: (1) capabilities that assist firms in identifying possible opportunities and challenges, (2) capabilities that assist firms in seizing opportunities, and (3) capabilities that assist firms in sustaining competition by enriching, rearranging, and defending a firm's tangible and intangible capital. Dynamic capabilities, according to Teece (2017), include sensing, seizing, and transforming capabilities.

Dimensions of organizational dynamic capabilities

This study looked at the following dimensions such as sensing, learning and integrating capabilities.

Sensing capability

Sensing capability is the ability of organization to detect, perceive and seek opportunities in the business environment (Pavlou & El Sawy, 2011). Scan, search, and exploration are required to detect opportunities and threats, especially in rapidly changing markets. In operational terminology, this entails a set of tools and routines such as a strategy-making mechanism that incorporates variation, resources dedicated to competitive analysis and technical progress monitoring, and platforms for discussion of potential prospects. Subtly, and in addition to the requisite resources, this capability requires a balance of centralization and decentralization of control to encourage feedback from market-facing units, an open culture that fosters debate, senior leaders' commitment of resources (financial and time) to encourage long-term thinking, and a senior management team that fosters a long-term mindset and practice (Burgelman, 2002). Nonaka (1993) represented a mechanism in which top-down strategic aim is articulated and bottom-up variance is produced in the service of learning and creativity. Similarly, Von Hipple's (1988) research on lead users and consumer communities, as well as Christensen's (1997) research on emerging markets, shed light on incumbents' prospects (and challenges) in sensing exploratory opportunities. Market sensing capability refers to a firm's ability to gather knowledge from the market (i.e., consumers, rivals, and technologies), perceive it, and store it as knowledge in an open corporate memory (Zahra & George, 2002).

For incumbent senior teams, this sensing is challenging. Jackson and Dutton (1988) demonstrated that administrators are more concerned with risks than with opportunities. As Tripsas and Gavetti (2000) demonstrated, this results in senior teams exaggerating emerging risks and failing to change their attitude and consider alternative business models. Similarly, Gilbert (2005) discovered that competitive risks were correlated with previously anchored linear reaction practices in the newspaper industry. Teece (1998) emphasized this point by stating that the skills needed to identify and/or create an opportunity are distinct from the skills required to benefit from or misuse the opportunity. This predictable surprise derives from senior team cognitions and procedures that routinely reduces potential risks (Bazerman & Watkins, 2004).

Sensing capability is described as a business's practices for finding, creating, and accessing customer-related opportunities. Seizing capability refers to the process by which resources are allocated to meet demands and prospects and capture value. The term "transforming capability"

refers to the process by which services are altered or reconfigured in order to maintain a new or distinct benefit. Sensing entails amassing pertinent market data (Teece, 2017). Sensing capability is critical for businesses to analyze their operating environments, understand customer preferences, and implement employee ideas. Market dynamics and a customer-centric mindset support businesses in identifying customer expectations and desires. The ability to detect shifts in customer preferences is critical for businesses, especially service businesses. Managers and staff who work directly with consumers must possess the necessary knowledge, skill, and experience to identify opportunities and respond appropriately.

This sensing activities must take place despite the difficulty of predicting technology patterns, especially because route dependencies and senior team cognitions often lock firms into established market and technical trajectories (Burgelman, 2002). Bingham (2005) discovered that developing new capabilities successfully in entrepreneurial companies requires learning from early mistakes rather than preventing them. Thus, promoting ambidexterity includes a senior management team that fosters learning, questions the status quo, acknowledges regression, and promotes knowledge integration and transition, even as the exploitative subunit stresses the polar opposite.

The organizational and managerial characteristics, activities, abilities, or factors that promote organizational learning processes (e.g., creating, obtaining, disseminating, and integrating information/knowledge) or enable an organization to learn are referred to as organizational learning capability (OLC) (Jerez-Gomez et al., 2005). OLC has been the subject of some research as a source of competitive advantage and a path to long-term corporate performance (Chiva et al., 2007). The managerial and organizational trait or feature that facilitates the organizational learning process or encourages an organization to learn is described by Goh and Richards (1997) as organizational learning capability (OLC). The ability of an organization to absorb knowledge, i.e., the capacity to develop, obtain, move, and integrate knowledge, as well as the ability to adapt actions to match the current cognitive condition, with the goal of enhancing organizational performance, is known as organizational learning capability (Jerez-Gomez, Cespedes-Lorente, & Valle-Cabrera, 2005).

Mechanisms and activities that encourage or facilitate the development of organizational knowledge should be developed by organization s. Socialization, internalization, and externalization, as well as all management activities that provide an environment conducive to learning, are examples of these processes (Mbengue & Sané, 2013). These activities are the foundation of organizational learning capability, which can be described as a collection of management practices that promote learning or a set of processes that enhance an organization 's ability to sustain and improve performance (Alegre & Chiva, 2008; Mbengue & Sané, 2013).

A systematic analysis was used to group the facilitating variables for organizational learning, resulting in a condensed essential collection of dimensions for organizational learning (Gatignon et al., 2002). Organizational learning capability is also thought of as a set of structures in many experiments. They discovered these distinct dimensions after doing a literature review (Alegre and Chiva, 2008; Jerez-Gomez et al., 2005) and came to the conclusion that OLC can be operationalized into 11 constructs:

1) Clarity of purpose and mission refers the degree to which employees have a clear vision/mission of the organization and understand how they can contribute to its success and achievement (Goh & Richards, 1997).
2) Dialogue is defined as a sustained collective inquiry into the processes, assumptions, and certainties that make up everyday experience (Chiva et al., 2007).
3) Experimentation refers the degree of freedom employees exploit in the pursuit of new ways of doing the job and freedom to take risks and degree to which new ideas and

suggestions are attended to and dealt with sympathetically (Chiva et al., 2007).

4) Knowledge transfer and integration consists of two closely linked processes, which happens simultaneously rather than sequentially: internal transfer and integration of knowledge. The effectiveness of these two procedures is predicated on the presence of absorptive capacity, which implies that there are no internal obstacles preventing the transition of best practices within the company (Jerez-Gomez et al., 2005).
5) Leadership commitment and empowerment described as the role of leaders in the organization with respect to helping employees learn and elicit behaviors that are consistent with an experimenting and changing culture (Goh and Richards, 1997).
6) Managerial commitment refers that managers recognize the relevance of learning for organizational success and they create a culture that reinforces the acquisition, creation, and transfer of knowledge as fundamental values (Jerez-Gomez et al., 2005).
7) Openness and interaction with the external environment refers as the extent of relationships with the external environment and a climate of openness that encourages the new ideas and points of views. The external environment of an organization is characterized as factors that affect opportunities and threats but are beyond the direct control of the organization. The commercial, social, political, and legal processes are all involved, as are manufacturing aspects such as competitors and suppliers (Chiva et al., 2007; Jerez-Gomez et al., 2005).
8) Participative decision making described as the level of influence employees have in the decision-making process (Chiva et al., 2007).
9) Risk taking is expressed as the tolerance of ambiguity, uncertainty, and errors. Organizational learning is most likely to be facilitated by companies that take chances and embrace errors. Accepting or taking chances implies that there is a chance of making mistakes or failing (Chiva et al., 2007).
10) System perspective involves bringing the organization ’s members together around a common identity (Senge, 1990; Sinkula, Baker and Noordewier, 1997). Individuals, teams, and regions within the company can also provide a good understanding of the organization 's priorities and aims, as well as how they will contribute to their advancement (Jerez-Gomez et al., 2005).
11) Teamwork and group-problem solving refers the degree of teamwork possible in the organization to solve problems and create new and innovative ideas (Goh and Richards, 1997).

The opportunity to embed new knowledge into new operational capabilities by establishing a common understanding and mutual sense-making is referred to as integrating capability (Pavlou & El Sawy, 2011). The willingness of a company to combine and organize various operations and parts of its supply chain is referred to as integrating capability. Many roles and tasks are included in the value-creation process in many corporations and organizations, or many agencies. In other words, no one corporation can generate all of the value. To put it another way, it has to collaborate with other companies that are part of the same value chain. Having said that, it seems that the company's ability to manage and organize many of these disparate roles and organization s through the value chain is critical. In other words, the company's integrating capabilities in terms of coordination capability among its value chain partners and supply chain partners. And it isn't

just outside the business where this occurs. However, there is still a lot of conflict within the company. Coordination or communication between the manufacturing and marketing departments is critical. Manufacturing and distribution are two different functions. As a result, integration would take place both within and outside the organization at the same time.

Integration

Integration can be built on services that can be combined, whether they are concrete or intangible. Physical resources such as factory, machinery, property, raw materials, semi-finished products, and so on, as well as human resources such as manpower, managerial, financial, legal, and technological resources, make up these resources (Penrose, 1959). Managerial capacity, product or factor markets, and complexity and risk are the three explanations that restrict firm expansion. The last two reasons are essentially constant and cannot be managed by the firm; the only thing a firm has is (managerial) ability, which it has and can manipulate. This tools are pooled by businesses to improve capabilities. Teece et al. (1997) advanced dynamic capability on the basis of these classic literatures, claiming that the component of firm-specific capabilities can be sources of competitive advantage. According to Hobday et al. (2005), systems integration is the technical capability that underpins new product growth and introduction, as well as the capability that a company uses to determine when and how to position itself, influencing how a firm competes, how it collaborates with, and how it competes with. These capabilities are then used to develop supportive tactics. Innovation necessitates a high level of integrative capability. Swan et al. (2007) found that the ability to incorporate and integrate knowledge (scientific, technical, commercial, and regulatory) through a dispersed variety of specialist groups would be essential to (biomedical) innovation as they investigated the modes of organising biomedical innovation in the UK and the US.

Technical integration capabilities, information integration capabilities, the ability to combine human capital, corporate integration capabilities, and transportation integration capabilities are also examples of integration capabilities. Searching capabilities, mix and enhancement capacity, and integration engineering capacity are all examples of resource integration capabilities from a horizontal perspective. Integration is a process, not an end goal, and it should be based on that goal. The aim may be to enhance a sub-functionality system's or to build a new (integrated) system (Yu & Li, 2007). As a result, setting a target that aligns with the firm's strategy is usually the first step in integration. Then, based on the target, we look for relative integration elements, but this is a time-consuming method that requires gathering all available knowledge about integration elements that may be implemented, followed by trial-and-error to arrive at the integration structure.

Concept of Corporate Resilience

Resilience refers to the ability of a firm to carry out its functions and return to a stable state after major disturbance or stress by considering the before and the during (Cumming et al. 2005; Gunderson 2000). In other words, resilience is about ensuring that an organization is still able to achieve its core objectives in the face of adversity, before and after. Resilience suggests concepts of awareness, detection, communication, reaction (and if possible, avoidance), recovery and the willingness and capacity to adapt to changing contexts (McAslan 2010). A resilient organization should be able to absorb disturbances or stresses through resistance or adaptation; maintain its basic services during a disturbance and bounce back' after such a disturbance (Practical Action 2010). Resilience is not only about building back better, but also about transformation thereby requiring both innovation and creativity (Maguire, Cartwright 2008). Within this view, resilience involves a rejection of the status quo; a return to the pre-event situation would leave the organization equally vulnerable to the next disturbance. The transformation view of resilience is concerned with concepts of renewal, regeneration and re-organization (Folke 2006). According to Hamel, Valikanga (2003) resilience is the ability to dynamically reinvent business models and strategies as circumstances change.

The concept of 'resilience' as a formal paradigm of organizations is still relatively young, but continues to gain momentum in academia. In responding to any potential barriers such as expense, engagement or cultural change, it is important to note that the various elements of a resilient organization are all fundamental to an effective and efficient business that is cognizant of risk, crisis management, business continuity planning, organizational leadership and contingency based management (Stephenson et al. 2010). Moreover, a resilient organization's objectives and strategies will not conflict with its overall business goals but will complement them. This makes resilience a multifaceted and multidimensional as well as very insightful concept (Ponomarov & Holcomb, 2009). As all organizations face unique risk landscapes, resilience is seen as both an outcome and a fundamental part of the governance of an organization. The resilience of an organization is, therefore, made up of the contribution of a wide range of different principles. Moreover, organizational resilience is not a one-off program or a management system that can be developed and then reviewed annually or as required. Resilience not only increases awareness of an organization's operating environment but it also provides an organization with the ability to act upon threats and challenges and aim for a better future (McManus, 2008).

Measure of Corporate Resilience

This study adopted one measure such as agility

According to Ganguly, Nichiani and Farr (2009) defined agility as an effective integration of response capabilities and knowledge management so that the unforeseen (or unpredictable) changes in both proactive and responsive business and customer needs and opportunities can be adapted quickly, efficiently, and accurately without compromising on the cost or quality of the product and process. Agility refers to the range of ways in which success is achieved. High flexibility means an active capacity and a readiness to recognize new options, overcome inertia and cater for unstructured situations, rather than being reduced to a few defined solutions (e.g., unanticipated change). Agility is defined as the ability to change an organization quickly, efficiently and sustainably; a replicable organizational resource" (Worley, Williams & Lawler, 2014). We also refer to agility as the capacity of an organization, as internal and external circumstances warrant, to efficiently redeploy and redirect its resources to value creation and value protection. Apart from managing demand shocks of Stigler, agile organizations need to manage uncertainty on the supply side and adjust strategy if necessary and desired. As an autonomous concept, organizational agility is limited by its management guidance. There is an implicit role of managers. The economic system has to choose how to respond to demand fluctuations and other surprises by putting routines and self-organization on one side. Agility can be described as the organizational ability to identify opportunities faster than competitors and take advantage of them. Due to the increased significance of meaning and response to environmental changes, it is highlighted as a key capability. In a knowledge-rich environment to provide customer-driven products and services in a rapidly changing market environment, Yusuf, Sarhadi and Gunasekaran (1999) define agility as the successful exploration of competitive bases (speed, flexibility, proactivity for innovation, quality and profitability) through the integration of reconfigurable resources and best practices. Sambamurthy, Bharadwaj, and Grover (2003) define agility as the capacity of a company to identify opportunities and threats, assemble the assets and skills needed to launch an adequate response, judge its advantages and risks, and implement competitively rapid action.

Agility is one of the keys to solving the problem when there is turbulence in an environment. Agility is utilized for reacting in the turbulent business environment to unexpected changes. Agility is strong and fast; it needs creativity and innovation (Gilaninia, Shahram, Resvani, Mousa, 2011) Agility means the ability to imagine new products and methods of doing business properly in the manufacturing field (Shams & al, 2007). Agility is a consequence of being aware of the changes

as a whole, both internally and externally (identification of opportunities and challenge), and of being adequately resourceful to deal with those changes at the proper time and of a flexible form that the organization can effectively implement (Braunscheidel & Suresh, 2009). While there are different definitions of agility, they all stress speed and flexibility as key factors to achieve agility (Azar & Pishdar, 2011). The goal of agile organization is to enrich and reward clients and maintain their employee and survival and market share, which essentially have the capacity to respond adequately to business changes (Javanmardi & al, 2011). Organizational agility is the capacity of the organization to survive and to thrive in a changing, unpredictable environment (Karami, 2007). Agility is an integrated result of alertness to changes – both internally and environmentally – that allows resources to respond (proactively / reactively) to these changes, all at an expeditious, flexible, affordable, relieved of their responsiveness. No one alertness or responsiveness gives agility individually. To achieve agility, both competencies are needed. Warning as well as responsiveness must be timely, flexible, affordable and appropriate. The effective integration of these two competences can lead to greater competitiveness. The result is a relatively comprehensive and unified conception of agility by including fundamental points that meet previous definitions (Holsapple & Li 2008). If all resources are fully committed, agility will be reduced – degrees of freedom to be aware of or responsive will be reduced and the organization will become less agile. Flexibility essentially involves managing risks through options cultivation (Holsapple & Li, 2008).

Theoretical Framework

This work anchored on resource-based theory.

Resource-Based Theory

The resource-based theory (RBT) focuses on a firm's capital as the primary determinants of competitive advantage and performance. In order to analyze origins of competitive advantage, it makes two predictions (Barney, 1991; Peteraf & Barney, 2003). For starters, this model assumes that companies within a market (or within a strategic group) are heterogeneous in terms of the capital they manage. Secondly, since the tools required to execute firms' policies are not perfectly mobile across firms, it is assumed that resource variability would continue over time (i.e., some of the resources cannot be traded in factor markets and are difficult to accumulate and imitate). Nonetheless, RBV does not appear to understand why several companies can gain competitive advantage in evolving conditions, beyond the fact that it is perceived to be stagnant in nature (Priem & Butler, 2001 cited in Barreto, 2010). As a result, Firms have been attempting to determine the strategy that drives competitive advantage in dynamic markets since the 1990s, propelled by tumultuous competition. For a resource package to lead to a competitive advantage, resource heterogeneity (or uniqueness) is considered a required prerequisite. "If all companies in a market have the same stock of capital, there is no strategy open to one firm that is not available to the other firms in the market," the logic goes (Cool, Almeida, Costa & Dierickx, 2002). The idea behind RBT is that a company's internal capital will become a direct source of long-term competitive advantage. This differs from conventional notions of competitive advantage popularized first by Porter (1985), which emphasized the firm's ability to achieve competitive advantage through external factors such as goods, location, and customer base. Although conventional views of competitive advantage, such as Porter's, are based on product, RBT is based on knowledge, according to Sveiby (2001). Specific talents, input variables, properties, and acquired knowledge are bundled into dynamic and intangible capabilities that are practiced by organizational processes or routines. Firms may use the above to organize operations and make more use of their other tools. Capabilities, as Day (1994) says, are the anchor that holds the assets together and allows them to be applied effectively. The location of a company, the size of its production plant, the availability of assembly lines, and the names of its products are all examples of properties. The

ability to handle supplier relationships, service management expertise, logistics capacity, and manufacturing and technological skills are only a few examples of strengths. The theory suggests that the overall performance of an organization in a changing business environment depends on its capabilities to renew, realign and reintegrate itself.

Empirical Review

Goh and Ryan (2002) investigated the relationship between an organization 's learning capability and its possible effect on firm performance. While the literature suggests that learning organizations are also high-performing organization s, there have been no large-scale longitudinal trials to back up this claim. A survey was conducted to assess the leaming capability of a sample of for-profit organizations, based on a developed scale to assess an organization 's leaming capability. Data on these corporations' financial and non-financial performance was also collected. Other aspects of the organization, such as scale and formalization, were also taken into account. The study's findings reveal that there is no connection between leaning capability and the two financial performance indicators of return on equity and return on assets. However, work satisfaction, a non-financial performance indicator, is closely linked to learning capability. The ramifications of an unusual discovery of a substantial positive association between formalization and financial performance are discussed. It is proposed that in the case of for-profit organizations, formalization may have an encouraging rather than a punitive effect on the organization.

Lindblom et al. (2008) investigated retail entrepreneurs' market-sensing capabilities and the effect these capabilities have on their business performance. Following the presentation of a conceptual model based on a literature analysis, an Internet survey of 226 K-retailers from the Finnish K-alliance is conducted. The mathematical model is tested and the impact of market-sensing capability on development and profitability is investigated using structural equation modelling (SEM). According to the findings, the majority of the retail entrepreneurs surveyed have comparatively well-developed market-sensing capabilities. The ability to sense the market and business success was considered to have a poor positive relationship. Market-sensing capability, on the other hand, has no constructive association with profitability. In this analysis, factors other than market-sensing capability were not taken into account. The article encourages practitioners to consider how market-sensing capabilities of entrepreneurs can be conceptualized and built in the framework of retail chains.

The impact of dynamic capability for research and development, marketing, and production on performance were investigated by Wang and Hsu (2010). They also looked at how the independent moderating efforts of governance and competitive posture affect dynamic capability and performance. Using Bayesian analysis, this study looks at panel data from 242 high-tech companies from 2001 to 2007. The findings show that dynamic capability for research and development and production has a significant effect on performance. They also discovered that governance has a positive effect on performance when it comes to dynamic capability for research and development. Furthermore, competitive posture has a favourable effect on performance when it comes to dynamic capability for marketing.

Fang, Chang, and Chen (2011) investigated the relationship between organizational learning capability and organizational creativity in order to better grasp the moderating role of knowledge inertia in this relationship. A total of 563 eligible questionnaires were obtained for analysis in this report. Nurses, administrators, and managers from a provincial hospital in central Taiwan participated in this research. The findings revealed that organizational learning capability is linked to organizational creativity in a constructive and meaningful way. The relationship between organizational learning capability and organizational creativity was moderated by knowledge inertia.

Ona, Tepeci, and Başalp (2014) examined the degrees and dimensions of Organizational Learning Capability (OLC) and Organizational Innovativeness (OI), as well as the impact of OLC on OI. The information was gathered from managers at the entry and middle levels of businesses who are part of the Manisa Chamber of Commerce and Industry. The information was gathered by a survey of 143 managers (by web page and by personal visits). Knowledge sharing, dialogue, participatory decision making, managerial commitment, competence and openness, knowledge transfer, and risk taking were discovered to be seven factor aspects in the OLC. Behavioral, product, operation, market, and strategic innovativeness were all factors considered when calculating the OI. OLC dimensions had a major impact on OI, according to the findings.

Popadi, Erne, and Milohni (2015) set out to reconcile previous research results on the relationship between organizational ambidexterity and innovation performance, which had been inconsistent. They deconstruct this construct using the combined dimension of ambidexterity, which refers to a high degree of both exploration and exploitation (introduction of products or services that were new to the market and new to the firm). They formulate the ambidexterity principle in terms of a company's innovation strategy. Micro data from the Community Innovation Survey (CIS) 2006 were used to validate the theory at the organizational level in twelve countries. They used self-reported metrics of innovativeness to operationalize ambidexterity and firms' innovation outcomes. They created a series of models to test our theory and ran several hierarchical linear regression tests on them to see if they were right. The findings show that exploration and exploitation are both positively linked to a firm's innovation performance, confirming our hypothesis that they are mutually beneficial. Additionally, they discover that when they combine their independent results into a single construct of organizational ambidexterity, this variable remains negatively and significantly linked to innovation performance. These findings provide administrators an idea of where it's better to balance trade-offs between exploration and exploitation. The association between exploration-exploitation and the firm's innovation performance is more positive for companies with lower corporate ambidexterity.

Gomes and Wojahn (2017) investigated the role of corporate learning capability in the performance of small and medium-sized businesses in terms of innovation and organizational performance. The study was carried out using a quantitative approach, descriptive and causal analysis, and a cross-sectional survey. A total of 92 textile-related businesses were included in the survey. The data was studied using the Structural Equation Modeling methodology. The findings indicate that organizational learning capability has an effect on small and medium-sized enterprises' creative performance; however, the impact of learning capability on organizational performance was not important. The study offers support for these relationships and indicates that they are important and constructive in the form of small and medium-sized textile businesses, a sector with a dearth of analytical literature.

Sudrajat et al. (2019) investigated the impact of sensing capability (SC) on the financial performance of logistics service firms (LSF-FP) as a result of advanced logistics services (ILS). A quantitative approach was used in this study. Questionnaires and chance sampling were used to gather data. The sample size was 150 respondents from logistics service firms (LSF) in the Muoz-Pascual and Galende (2020) investigated the impact of ambidextrous knowledge, i.e., knowledge oriented within a firm towards the creation of exploitation activities and knowledge oriented towards the development of exploration activities, on employee imagination, R&D, and sustainable product innovation. Employee ingenuity, research and development, and long-term product innovation are all influenced by implicit and overt knowledge, they say. They used multisource data obtained from 245 Spanish companies spanning fourteen sectors to empirically validate our theories. These two forms of individual knowledge, according to their structural equation models, forecast employee creativity, which in turn boosts R&D ventures and long-term product advancement performance. The findings show that there are close links between knowledge,

imagination, research and growth, and long-term product breakthrough performance, as well as a high capacity for learning. Positive relationships between implicit and explicit knowledge, employee ingenuity, research and growth, and sustainable product creation performance are often greater among companies with high learning capability, according to a multi-group systemic review. Managers may benefit from the advice they get. Employee learning capability has a strong impact on knowledge, imagination, and sustainable product innovation success; initiatives and investments in knowledge promote the advancement of innovative technologies, new research and development ventures, and sustainable product innovation success; employee learning capability has a strong influence on knowledge, creativity, and sustainable product innovation success.

Knowledge Gap

Over the years, studies have been carried out on ways to enhance the resilience of organizations. Ahiauzu and Jaja (2015) examined process innovation and organizational resilience in Public Universities in South-South Nigeria with focus on process innovation. The study made efforts to explore corporate resilience and identified three dimensions- situation awareness, keystone vulnerability, and adaptive capacity yet the study was domiciled on universities. Akhigbe and Onuoha (2019) examined the relationship between strategic agility and organizational resilience. Amah and Onwughalu (2017) examined ambidexterity and organizational resilience of telecommunication firms in Port Harcourt, Rivers State. However, there are scanty scholarly work on the relationship between organizational dynamic capabilities and corporate resilience. This gap in literature is what informed this study.

Methods

This study adopted cross sectional search survey design. 24 respondents were orally interview of their experience in their firms and the current situations. This study also reviews past literature of scholar to know the extant of their views.

Findings

Drawing from various review of scholarly works, it was observed that the ability of firms to effectively integrate, build and reconfigure internal and external competencies to respond to the rapidly changing business environment will help enhance their dynamic capabilities. It was found that organizational sensing capability enhances the organizations ability to easily identify available opportunities and threat and thus develop necessary mechanism to tackle those challenges which help enhances firm's agility. Learning and integrating capabilities helps in enhancing the firms fortune and increases their resilience. In summary, the finding is that organizational dynamic capability help enhances resilience of organizations.

Conclusion

Enhancing resilience ability of organizations is vital in order to ensure the continuity of the public parastatals. Ensuring the dynamic capability of organization is a key towards enhancing the firm's resilience. Enhancing sensing capability will help ensure agility of firms which will thus help boost their resilience. The dynamism in the environment is often what make organization to fizzle out of business. However, when there is an effective sensing capability in the organization, such will enable the organization to effectively prepare for any form of eventualities and such will help enhance their resilience. Sensing capability also enable organization to quickly detect threat that could have threaten the survival or existence of the organization. Again, learning capability enable organizations to absorb and transform new knowledge and apply it to the development of new product/services to gain competitive advantage and enhance the firms resilience in terms of agility and dynamic capability. Organizations that are often searching for new knowledge regarding sustainable development, stand a better chance of outperforming rivalries and becoming more resilience. Integrating capability influences the resilience of organization. This implies that organization that enhances their integrating capability are most likely to operate efficiently and

these organizations ensures inter-departmental coordination which could thus enhance the firms resilience. Ensuring organizational ambidexterity help boost the resilience of the organization. In conclusion, organizational dynamic capabilities in terms of sensing capability, learning capability and integrating capability helps in enhancing the resilience level of organizations.

Recommendations

Drawing from the conclusions, the following recommendations were offer;

1. The management of public parastatals should constantly monitor the technological and market trends in the industry as such will help enhance their sensing capability and thus boost their dynamic capability.
2. The management of public parastatals should be fast in detecting a major change in the industry as such will inform their decisions and actions towards enhancing their agility.
3. The management of public parastatals should strategically identify and acquire external knowledge very quickly in order to boost their resilience.
4. The management of public parastatals should invest in enhancing the capability of the employees as such will enable them to effectively develop novel ideas to boost the firm's resilience.
5. The management of public parastatals should ensure inter-departmental coordination as such will go a long way towards increasing the firm's agility.
6. The management of public parastatals should also ensure continuous learning as such will help boost their resilience.
7. The management of public parastatals should be committed to improving quality of products at lower cost as such will help increase the resilience capability.

REFERENCES

Akgün, A. E., Keskin, H., & Byrne, J. (2008). The moderating role of environmental dynamism between firm emotional capability and performance. *Journal of Organizational Change Management, 21*(2), 230-252.

Alegre J. & Chiva R. (2008). Assessing the impact of organizational learning capability on product innovation performance: An empirical test. *Technovation, 28*, 315–326.

Ahiauzu and Jaja (2015) Process innovation and organizational resilience in Public Universities in South-South Nigeria. *Journal of Management*, *36*(1),25-28.

Barney, J. (1991). Firm resources and sustained competitive advantage. *Journal of Management*, *17*(1) 99-120.

Burgelman, R.A. (2002). *Strategy is destiny: How strategy-making shapes a company's future*. Free Press.

Barney, J., Ketchen, D. & Wright, M. (2011). The future of resource-based theory: revitalization or decline. *Journal of Management*, *37*(5), 1299-1315.

Barreto, I. (2010). Dynamic capabilities: A review of past research and an agenda for the future. *Journal of Management*, *36*(1),256-280.

Bingham, C. B. (2005). L*earning from heterogeneous experience: The internationalization of entrepreneurial firms*. Stanford School of Engineering Working Paper.

Braunscheidel, M., & Suresh, N. (2009). The organizational antecedents of a firm's supply chain agility for risk mitigation & response. *Journal of Operations Management*, *27*, 119–140.

Chiva R., Alegre J., & Lapiedra R., (2007). Measuring organizational learning capability among the workforce. *International Journal of Manpower*, *28*(3), 224-242.

Cool, K., Almeida Costa, L. & Dierickx, I. (2002). *Constructing competitive advantage.*. Sage Publications.

Cumming, G. S., Barnes, G., Perz, S., Schmink, M., Sieving, K. E., & Southworth, J., (2005). An exploratory framework for the empirical measurement of resilience*.* *Ecosystems*, *8*(8), 975-987.

Day, G. S. (1994). Closing the marketing capabilities gap. *Journal of Marketing*, *58*(10), 37-52.

Fang, C., Chang, S & Chen, G. (2011). Organizational learning capability and organizational innovation: The moderating role of knowledge inertia. *African Journal of Business Management*, *5*(5), 1864-1870.

Folke, C (2006). Resilience: The emergence of a perspective for social-ecological systems analyses. *Global Environmental Change*, 16, 253-267.

Gallagher, K., & Worrell, J. (2008). Organizing it to promote agility. *Information Technology Management*, 9, 71–88.

Ganesh, Madanmohan, Jose, & Seshadri, (2004). Adaptive strategies of firms in high-velocity environments: The case of B2B electronic market, *Journal of Global Information Management*, *12*(1), 41-49.

Ganguly, A., Nilchiani, R. & Farr, J. V. (2009). Evaluating agility in corporate enterprises. *International Journal of Production Economics*, *118*(2), 410–423.

characteristics of institutions to enable the adaptive capacity of society. *Environmental Science and Policy* 13, 459-471.

Gatignon, H., Tushman, M. L. Smith, W. & Anderson, P. (2002). A structural approach to assessing innovation: Construct development of innovation locus, type, & characteristics. *Journal of Management Science*, *48*(9), 1103-1122.

Gibson, C. B., and Birkinshaw, J. (2004). The antecedents, consequences, and mediating role of organizational ambidexterity. *Academy of Management Journal*, *47*(2), 209-226.

Gilbert, C. (2005). Unbundling the structure of inertia: Resource versus routine rigidity. *Academy of Management Journal*, *48*, 741-763.

Goh S. & Ryan G. (2002). Benchmarking the learning capability of organizations, *European Management Journal*, *15*(5), 575-583.

Gomes, G. & Wojahn, R.M. (2017). Organizational learning capability, innovation and performance: study in small and medium-sized enterprises (SMES), *Revista de Administração*, *52*(7), 163–175.

Grant, R. M. (1996). Prospering in dynamically-competitive environments: Organizational capability as knowledge integration. *Organization Science*, *7*(4), 375-387.

Gunderson, L. H. (2000). Ecological Resilience – In Theory and Application. *Annual Review* of Ecology, *Evolution, and Systematics*, 31,.425-439.

Gupta, J., C. Termeer, J. Klostermann, S. Meijerink, M. van den Brink, P. Jong, S. Nooteboom, & Bergsma, E. (2010). The adaptive capacity wheel: a method to assess the inherent

Hearnshaw, E. J. S. & Wilson, M. M. J. (2013). A complex network approach to supply chain network theory. *International Journal of Operations and Production Management*, *33*(4), 76-87.

Helfat, C. E. (2003). *Stylized facts regarding the evolution of organizational resources and capabilities*. Blackwell Publishing.

Helfat, C.E. & Winter, S.G. (2011). Untangling dynamic and ordinary capabilities: strategy for the (n)ever-changing world, *Strategic Management Journal*, *32*, 1243-1250.

Helfat, C.E. (1997). Know-how and asset complementarity and dynamic capability accumulation: The case of R&D. *Strategic Management Journal*, 18, 339-360.

Hobday, M., Davies, A. & Prencipe, A. (2005). Systems integration: a core capability of the modern corporation. *Industrial and Corporate Change*, *14*(6), 1109.

Holsapple, C.W. &Li, X. (2008). *Understanding Organizational Agility: A Work-Design Perspective*. 13th International Command and Control Research and Technology Symposia (ICCRTS 2008), 17-19 Jun2008, Seattle, West African.

Jansen, J.J. Kostopoulos, K.C., Mihalache, O.R., Papalexandris, (2016). A. A Sociopsychological perspective on team ambidexterity: the contingency role o supportive leadership behaviours. *Journal of Management Studies, 53*, 939–965.

Jarzabkowski, J., Smets, M., Bednarek, R., Burke, G. & Spee, P. (2013). *Institutional Ambidexterity: Leveraging institutional complexity in practice*. Emerald Group Publishing Limited.

Popadić, M., Černe, M. & Milohnić, I. (2015). Organizational Ambidexterity, Exploration, Exploitation and Firms Innovation Performance, *Organizacija*, *28*(2), 112-119.

Jerez-Gomez P., Cespedes-Lorente J. & Valle-Cabrera, R. (2005). Organizational learning capability: a proposal of measurement.*Journal of Business Research, 58*, 715– 725.

Kozlenkova, I., Samaha, S. A. & Palmatier, R. (2013). Resource-based theory in marketing. *Journal of the Academy of Marketing Science*, *3*(2), 32-29.

Lindblom, A., Olkkonen, R., Mitronen, L., & Kajalo, S. (2007). Market-sensing capability and business performance of retail entrepreneurs. *Contemporary Management Research, 4,* 219-236.

Maguire, B., Cartwright, S. (2008). *Assessing a community's capacity to manage change: A resilience approach to social assessment*. Australian Government Bureau of Rural Sciences, Canberra ACT.

Martin, J. A., & Eisenhardt, K. M. (2000). Dynamic capabilities: what are they? *Strategic Management Journal*, *21*(10-11), 1105.

McAslan, A (2010). *Organizational resilience: Understanding the concept and its application*. Torrens Resilience Institute, Adelaide, Australia.

Nonaka, I. (1993). *The knowledge creating company.* Oxford University Press.

Onağ, A.O., Tepeci, M. & Başalp, A.A. (2014). Organizational Learning Capability and its Impact on Firm Innovativeness, *Procedia - Social and Behavioral Sciences, 150*, 708 – 717.

Pavlou, P. A. & El Sawy, O. A. (2011) Understanding the elusive black box of dynamic capabilities. *Decision Sciences, 42*(1), 65-77.

Penrose, E.T. (1959). *The theory of the growth of the firm*. Blackwell.

Porter M. (1985). *Competitive advantage: Creating and sustaining superior performance.* Free Press.

Priem, R. & Butler, J. (2000). Is the resource-based view a useful perspective for strategic management research? *Academy of Management Review, 26*(1), 22-40.

Stronen, F., Hoholm, T., Kvaerner, K. & Stome, L. N. (2017). Dynamic capabilities and innovation capabilities: The case of the innovation clinic. *Journal of Entrepreneurship, Management and Innovation, 13*(1), 89 – 116.

Sudrajat, D., Saroso, H., Lasmy, C., Herlina, M.G. & Syahchari, D.H. (2019). The role of sensing capability in improving financial performance of logistics service firms. *International Journal of Innovation, Creativity and Change*, *10*(9), 1-10.

Sveiby, K. E. (2001). A knowledge-based theory of the firm to guide in strategy formulation. *Journal of Intellectual Capital, 2*(4), 344 - 358.

Swan, J., Goussevskaia, A., Newell, S., Robertson, M., Bresnen, M. & Obembe, A. (2007). Modes of organizing biomedical innovation in The UK and US and the role of integrative and relational capabilities. *Research Policy, 36*(4), 529-547.

Teece, D. J. (2012). Dynamic capabilities: Routines versus entrepreneurial action. *Journal of Management Studies*, *49*(8), 1395-1401.

Teece, D., Pisano, G. & Shuen, S. (1997). Dynamic capabilities and strategic management. *Strategic Management Journal,18*(7), 509 – 533.

Zahra, S.A. & George, G. (2002). The net-enabled business innovation cycle and the evolution of dynamic capabilities.

Von Hipple, E. (1988). *Sources of innovation*. Oxford University Press.

Wang, C. & Hsu, L. (2010). The influence of dynamic capability on performance in the high technology industry: The moderating roles of governance and competitive posture. *African Journal of Business Management*,*4*(5), 562-577.

Wang, C. L., & Ahmed, P. K. (2007). Dynamic capabilities: A review and research agenda. *International Journal of Management Reviews*, *9*(1), 31-51.

Winter, S. (2003). Understanding dynamic capabilities. *Strategic Management Journal*, 24, 991-995.

Worley, Ch.G., T. Williams, III E. & Lawler, E., (2014). *The agility factor. Building adaptable organizations for superior performance.* Jossey Bass.

Wulandari, F. R., Supriyono, B., Muluk, M. R. K. &Setyowati, E. (2021). Dynamic capability model to increase creative economy competitiveness in Depok city, West Java, Indonesia. *European Journal of Molecular and Clinical Medicine, 8*(3), 780 – 791.

Yu, J. & Li, X. (2007). Discussion on Connotation and Characteristics of Integration. International Conference on Management Science and Engineering, Jiaozuo, China.

Yusuf, Y. Y., Sarhadi, M., & Gunasekaran, A. (1999). Agile manufacturing: The drivers, concepts and attributes. *International Journal of Production Economics*, *62*, 33-43.

Zahra, S. A. & George, G. (2002). Absorptive capacity: A review, reconceptualization, and extension. *The Academy of Management Review*, *27*(2), 185-203.

Information Systems Research, *13*(2), 147-150.