Promoting Resilience of Agricultural Sector through Total Quality Management: A Conceptual Model

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Abstract

The concept of resilience has attained growing support academically as a result of its potentially devastating implications of disruptions and understanding the dynamics of successful adaption within organisations. This paper will focus on adaptive capacity and improvisation as measures of the concept of resilience by establishing a solid conceptual base for organisational resilience upon which future empirical studies can be based. Finally, this paper add nuance to total quality management by using management leadership, continuous improvement and customer focus as its components which magnifies the nexus with resilience of the agricultural sector. The conceptual framework of this paper supports analytical thinking by outlining the fundamental processes necessary for an organisation to produce a resilient response and outlining future research directions.

Keywords: Total Quality Management, Organisational Resilience, Agricultural Sector

1. INTRODUCTION

Organisational resilience is the "ability of an organisation, business entity or system to anticipate external shocks and disruptions and to recover swiftly with a sufficiently rich variety of protections and responses" (Oh & Teo, 2009). It is a fundamental factor for an

organisation to be able to remain in business (Annarelli & Nonino, 2016).

Zolli and Healy (2013) in comparing a resilience-rich against a resilience-poor organisation, argued that a resilience-rich organisation is better prepared to create a sustainable method towards challenges than resilience-poor organisation. This is buttressed by Alastir (2010) who submitted that resilience-rich organisations have the capacity to adapt, become relevant and responsive to market alterations. Furthermore, Knight and Pretty (1997) opine that having knowledge of its resilient strength, some organisations are better equipped to see opportunities, even in the presence of crisis. This becomes imperative to look at adaptive capacity and improvisation (Hollnagel, 2010).

Total Quality Management (TQM) as defined by Pun (2002) is an integrated management philosophy and a collection of practices that bring to light continuous improvement, focusing on customers' needs, improved employee participation and teamwork, competitive benchmarking, continuous measurement of outcomes and effective relations with suppliers. Total quality management is a firm-wide management philosophy of continuously improving the quality of the products/services/processes by focusing on the customers' needs and expectations to enhance customer satisfaction and firm performance (Kaynak, 2003; Nair, 2006; Sadikoglu & Zehir, 2010). TQM consists of management leadership, continuous improvement and customer focus (Anderson & Sohal, 1999; Sureshchandar, Rajendran & Anantharaman, 2002).

These three components of TQM helps to improve customer satisfaction, quality of products and/or services, productivity, capacity of the production line, employee performance, quality-of-work-life, market share, and competitive position (Choi & Eboch, 1998; Goetsch & Davis, 2010). Furthermore, it also aid in the reduction of production development time, waste of inventory, work in process, cost, delivery times, employee turnover, and complaints (Sadikoglu, 2003; Zehir & Sadikoglu, 2012).

The importance of agriculture cannot be over-emphasized because it is the pillar of several economies globally. Specifically, the agricultural sector serves as an engine in the reduction of poverty and unemployment, stimulating overall economic development and industrialization of developing nations (Ogbalubi & Wokocha, 2013); and economic transformation, job growth, and food security (Downie,

2017). Practically, agriculture is the major contributor to the export-led growth pattern of countries like India, Mexico, Philippines and Taiwan which was able to attain remarkable increases in per capita Gross National Product (GNP). It is also the major contributor to economic activities in Africa which account for 20% and 30% Gross Domestic Product (GDP) in the continent (World Bank, 2017). In Nigeria, the agricultural sector after independence accounted for about two-thirds of the Gross Domestic Product (GDP) and was the dominant sector of the economy, such that the development of the nation was dependent on it (Ogbalubi & Wokocha, 2013).

However, with the inception of the oil boom (1972-1975) there has been a steady decline in the market share held by agriculture (Diao, Hazell, & Thurlow, 2006; Ayodele, Obafemi & Ebong, 2013; Omorogiuwa, Zivkovic & Fatima, 2014). Thus, Nigeria became a foremost importer of agricultural products as against its earlier position as a foremost exporter. Consequently, Nigeria started having a decline of the economically active population in agriculture as well as an increase in the level of unemployment (Ogbalubi & Wokocha, 2013). According to Ayodele et al., (2013) to get back on track, "there must be increase in the low productivity of current agricultural companies, engage competition within the agricultural sector, develop domestic policies and increase funding".

2. LITERATURE REVIEW

2.1: Overview of the Agricultural Sector

Originally, Nigeria's economy was agrarian, but currently depends heavily on oil for its revenue. The agricultural sector has been a key determinant and described as the mainstay of the country's economy since it attained independence and remains a resilient sustainer of the populace. It remains a key sector of the economy providing employment for about 70% of the population (CIA, 2013). According to Sekunmade (2009) agriculture employs about two-thirds of Nigeria's labour force, contributes significantly to the GDP and provides a large proportion of non-oil earnings (CIA, 2013). It also helps to maintain a healthy and peaceful population and also a source of food and nutrition for households (Bola, 2007).

Agriculture is adjudged to be the lifeblood of Africa (CIA, 2013). Averagely, it contributes 15% of total GDP in Africa; it is between 3% and below in Botswana and South Africa, and more than 50% in Chad, which means a different range of economic structures (Food and Agriculture Organization (FAO), 2015). Agriculture, therefore, has the potential to transform the economies of Africa by improving incomes and thus consumption, as well as providing a pathway to establishing manufacturing industries (McKinsey Global Institute (MGI), 2010).

2.2: The Nigerian Agricultural Sector

In the early 1960s (independence era) Nigeria operated a mixed economy and agriculture contributed more than 66% of the country's GDP. However, Nigeria was the world's largest exporter of groundnut and palm produce and the third largest producer and exporter of cocoa an important exporter of rubber and cotton (Sekunmade, 2009). The diversity of these natural resources gave the various regions a mark of identity. For example, groundnut was largely grown in the North; palm produce was largely grown in the East and cocoa in the West.

Nigeria's enabling of climate allows it to produce a variety of food and cash crops. The staple food crops include cassava, yam, corn, coco-yam, cow-peas, beans, sweet potatoes, millet, plantain, banana, rice, sorghum, and a variety of fruits and vegetable. The leading cash crops are cocoa, citrus, cotton, groundnut (peanuts), oil palm, and rubber. They were also Nigeria's major export in the 1960s and early 1970s until oil took over as the major source of the country's revenue. Among major export destinations for Nigeria agricultural export products were Britain, Canada, France, Germany and United States.

Since independence, previous governments have introduced various agricultural programmes to promote agriculture. Nigeria's first national plan for Agricultural Development was from 1962-1968. In 1972, the Farm Settlement Scheme and National Accelerated Food Production Programme (NAFPP) were launched as specialised development schemes. Furthermore, in 1976 Operation Feed the Nation (OFN) and River Basin and Rural Development Authorities (RBDA) were launched, while the Green Revolution Programme and the World Bank-funded Agricultural Development Projects (ADP) (represents the first major practical demonstration of the integrated

approach to agricultural development in Nigeria) were launched in the early 1980s.

Subsequently, in order to deregulate and stimulate local production, the Structural Adjustment Programme (SAP) was introduced in 1986. In 1996 and 2000, the National Acceleration Crops production programme (NAICPP) and the Agricultural and Rural Transformation programme (ARTP) were established respectively. The National Economic Empowerment Development Strategy (NEEDS) was launched in 2004; NEEDS was aimed at promoting and improving production, distribution and processing of agricultural products.

Presently, economic growth in Nigeria has largely been accounted for by resilient agricultural growth (Eboh, Oduh & Ujah, 2012). Agriculture contributes 40% of the Gross Domestic Product (GDP) and employs about 70% of the working population in Nigeria (CIA, 2013). Agriculture is also the largest economic activity in the rural area where almost 50% of the population lives (Sekunmade, 2009).

2.3: The Concept of Resilience

The term "resilience" originated from the Latin word "resilire", which means to hop, leap, jump or spring back (Alexander, 2013) and the ability to recover (Britannica, 2014). According to Ponomarov and Holcomb (2009) resilience is both a multifaceted and multidimensional concept. Fundamentally, the concept of resilience is closely related with the ability of an organization, entity or system to return to a stable state after a disruption (Gunderson 2000; Cumming, Barnes, Perz, Schmink, Sieving, Southworth, Binford, Holt, Stickler, & Van Holt, 2005). Presently, there is no unified definition of resilience (Linnenluecke, 2017). There are many different definitions of resilience, all of which share similarities but which also give emphasis to different aspects of the concept.

Academically, resilience was first introduced in ecology through the works of Hollings (1973, 2001), Walker, Carpenter, Anderies and Abel (2002) and Walker, Holling, Carpenter and Kinzig (2004). As a concept, "resilience" has been conceived in various but related ways, across different disciplines including change management (Conner, 1993), crisis management (Weick, 1993), medicine (O'Leary & Ickovics, 1995), disaster management (Weick,

Sutcliffe & Obstfeld, 1999), child behaviour (Reinmoeller & Van Baardwijk, 2005) engineering (Hollnagel, Woods & Leveson, 2006), psychology (Powley, 2009) and organisation management (Weick, 1993; Gilbert, Eyring, & Foster, 2012).

Furthermore, resilience is "the ability of systems to absorb changes...and still persist" (Holling 1973, p. 3). Suctilffe and Vogus (2003) submit that resilience is "the maintenance of positive adjustment under challenging conditions" (p. 95). According to Berkes and Turner (2006) resilience is the "capability of an entity or system to absorb disturbance and reorganize while undergoing change". The Australian Government views resilience as neither a plan nor a checklist, but rather a capacity (TISN, 2007), whereas ASIS International described resilience as security, preparedness and continuity management systems (ASIS 2009).

2.3.1: Organisational Resilience

In this 21st century, organisational resilience emerged as a concept to be developed in organisations facing the challenge of rapid changes. According to Sutcliffe and Weick (2007) view as "Managing the Unexpected", described organisational resilience as the ability to recover, and resilient actions as the whole sets of activities that enable the organisation to recombine fragments of past experiences into novel responses; and Mc Cann and Selsky (2012) who described organisational resilience as "Mastering Turbulence", submit that organisational resilience is "the capacity for resisting, absorbing, and responding, even reinventing if required, in response to fast and/or disruptive change that cannot be avoided" (p. 9). Although, they both have different approaches, both views supports each other in having an insight of organisational resilience, and complement the idea of organisational resilience as part of a complex system that strives for flexibility and multilevel (individual, team, organisation, and ecosystem) analysis. Organisational resilience is a process of coping with change, overcoming challenges and functioning adaptively (Lengnick-Hall & Beck, 2005; Zhang & Liu, 201812).

Furthermore, resilient organisations are much like resilient people in how they deal and survive unpredicted shocks (iJet, 2009) and are possessed by individuals, groups or a community that allows them to prevent, minimize or prevail in the face of adversity (Braes & Brooks, 2011). A resilient organisation, is one that is able to adapt,

cope, survive and prosper in the face of abrupt and sometimes hostile changes in the business-setting (Ateke & Nadube, 2017; Tamunomiebi, 2018). Clearly, organisations that survive through adverse events become more resilient (Dalziell & McManus 2004).

2.4: Measures of Organisational Resilience

Basically, organisational resilience is a multifaceted and multidimensional concept. Weick (1993) provides five dimensions for organisational resilience: improvisation, virtual role systems, organizational wisdom and respectful individual and social interaction. From a system viewpoint, Tierney (2003) dimensionalized organisational resilience with four components of robustness, redundancy, resourcefulness and rapidity while in strategic viewpoint, McManus, Seville, Brunsdon and Vargo (2008) think that a resilient organisation should need situation awareness, management of keystone vulnerabilities and adaptive capacity. Moreover, Lengnick-Hall, Lengnick-Hall and Beck (2011) divided organisational resilience into cognitive dimensions, behavior dimensions, and context dimensions.

Furthermore, Akgün and Keskin (2014) elucidate organisational resilience via competence orientation, deep social capital, original/unscripted agility, practical habits, behavioral preparedness and broad resource networks. Deniz and Arzu (2015) developed three dimensions of organisational resilience: robustness, agility and integrity. Lastly, Sylva (2018) decomposed organisational resilience into anticipatory ability, robustness, adaptability and agility. However, the measures for this study are adaptive capacity and improvisation (Hollnagel, 2010).

2.4.1: Adaptive Capacity

The ability for an organisation to adapt is at the center of its ability to demonstrate resilient characteristics (Lee, Vargo & Seville, 2013). According to Kendra and Wachtendorf (2003) adaptive capacity refers to an organisation's ability to always design and create answers to complement or surpass the needs of their operating environment as changes in that environment surface. Adaptive capacity is "the ability of an organisation, entity or system to respond to variations in its external environment, and to recover from damage to internal

structures within the organisation that affect its ability to achieve its purpose" (Dalziell & McManus, 2004).

Adaptive capacity is a key requisite for building resilience and ensuring service quality, since knowing how to cope with environmental changes is very important for organisations as it should be able to maintain operations in almost all conditions, as well as being able to respond to changes in an uncertain and changing environment (Annarelli, Battistella & Nonino, 2020). Kendra and Wachtendorf (2001) asserted that in managing the balance between stability and change to the business environment, resilience as adaptive behavior is increasingly being applied. Furthermore, adaptive capacity is also associated with the competitiveness an organisation (Starr, Newfrock & Delurey, 2003).

2.4.2: Improvisation

Improvisation has several connotations. However, from organisational perspective, Bastien and Hostager (1988) defined organisational improvisation as the creation, acceptance and application of new philosophy, thoughts or ideas by employees within the context of a shared awareness of the group performance as it unfolds over time. Weick (1998) defined improvisation as the immediate creation of alternative ones there is a crisis or breakdown of an organisational order. Jambekar and Pelc (2007) viewed organisational improvisation as the ability to envisage emerging reality and to operate in accord with it.

According Weick (2001) improvisation as just-in-time strategy, which are differentiated by trying to anticipate future events, the ability to do a quick survey, and the ability to reduce loss. Crossan and Sorrenti (2002) view improvisation as an activity where planning is a link to opportunity, creating strategy formulation and implementation. Furthermore, Coutu (2002) submit that improvisation is time-based due to its emphasis on the timing of conception of an idea and its implementation.

Improvisation is characterized by nearness in time between planning and execution of an action (Moorman & Miner, 1998; Chelariu, Johnston & Young, 2002). Improvisation may create, solve or worsen a problem, and in facilitating the ability to improvise successfully, expertise, teamwork quality and a high level of real-time information, have to be on ground (Crossan & Sorrenti, 2002).

2.5: The Concept of Total Quality Management (TQM)

Total Quality Management (TQM) is a management philosophy, which is focused on the synergy of the various departments in an organisation, providing products and services that satisfy customers' needs through the utilization of employees, management leadership and the interconnection of all the organisations' resources (Escrig, 2004). According to Hoyle (2007) TQM is, "a management philosophy and company practices that seek to employ the personnel and material resources of an organisation in the most effective way to attain the objectives of the organisation" (p. 200) while Jones (2011) submitted that total quality management is a management technique that addresses quality of products and services in an organisation and accentuates that every organisation should have it as its focal goal. Furthermore, Oakland (2014) postulated that TQM is a business philosophy that espouses to improve the entire effectiveness and flexibility of a business. It is basically a means of organizing and involving the whole entity of an organization (that is every department, every activity, and every single person at every level). Thus, total quality management is an approach employed by management to ensure that every employee has the responsibility to deliver quality (Shafiq, Lasrado & Hafeez, 2017).

The main objective of TQM is to establish a management system and corporate culture to ensure enhanced customer satisfaction, which entails a systematic method for continuous improvement of organisational processes, resulting in high quality products and services (Waldman, 1994), it also leads to better service quality and organisational performance (Cook & Verma, 2002), and helps to improve customer satisfaction, quality of products and/or services, productivity, capacity of the production line, employee performance, quality-of-work-life, market share, and competitive position (Goetsch & Davis, 2010). Furthermore, it is a factor in the reduction of production development time, waste of inventory, work in process, cost, delivery times, employee turnover, and complaints (Zehir & Sadikoglu, 2012).

2.6: Dimensions of Total Quality Management

There are several operational concepts that best describes TQM. Based on the assertions of Das, Handfield, Calantone and Ghosh (2000) and Samson and Terziovski (1999), TQM is a multidimensional

construct, while scholars like Choi and Eboch (1998); Douglas and Judge (2001); and Arawati (2005) decomposed TQM as a uni-dimensional construct. And from several literature, the most frequently used dimension for TQM are management leadership, training, customer focus, continuous improvement, strategic planning and process management (Vouzas & Psychogios, 2007). However, three dimensions of TQM (management leadership, continuous improvement and customer focus) by Anderson and Sohal (1999) and Sureshchandar, Rajendran and Anantharaman (2002) are considered for this study.

2.6.1 Management Leadership

Harrington and Williams (2004) argued that management leadership is the most recognized and leading dimension of TQM. According to Mutunga (2013) management leadership is the extent at which management sets up TQM objectives and strategies, provides and allocates necessary resources, contributes in quality improvement efforts, and assesses TQM implementation and performance.

Management leadership is based on effective communication, teamwork spirit, empowerment, participative decision making process and effective training of employees (Koehler & Pankowski, 1996). Hitt and Ireland (2002) submit that the success of management leadership is determined by how leaders can utilize both social and human capital in the process of creating competitive advantage for an organisation. Furthermore, Chuan and Soon (2000) posit that the crucial role of commitment to organisational goals and objection played by the leadership of management contribute to the success of any organisational program.

Management leadership conveys its commitment to quality through: provision of adequate resources to the implementation of quality management efforts, assigning a higher priority to quality over cost or schedule, investing in human and financial resources as well as making quality a dimension in performance evaluation for everyone in the organisation.

2.6.2: Continuous Improvement

Continuous improvement is a process that involves constant improvement in the processes, products and services of organisations (Deming, 1986). According to Anderson, Rungtusanatham and

Schroeder (1994) continuous improvement is based on process management practices that produces increased improvement and innovations in products, services, and processes, while Juergensen (2000) viewed continuous improvement as process that boost success and reduces failures. Furthermore, continuous improvement is defined by Anand, Ward, Tatikonda, and Schilling (2009) as a "systematic effort to discover and apply modern methods of attending to work".

According to Pearce and Robinson (2000), continuous improvement determines the processes and methods used by managers as a strategic control that allows their organisations to respond proactively and have an impact on the organisation's achievement. Continuous improvement is a process that has come to stay in organisations, because it may never stop. Its starting point is after the achievement of other objectives has been stopped. The argument behind continuous improvement is that human preferences and taste are dynamic and as such what is seen as quality today can be inferior tomorrow.

2.6.3: Customer Focus

Expressions associated with TQM such as "quality starts and finishes with the customer", "the customer defines quality", "the customer always comes first", "the customer is always right", "the customer is king", reveal the magnitude to which TQM is customer focused. Customer focus is one of the total quality management principles that form the basis of the latest version of International Organisation for Standardization (ISO) 9000 (Stevenson, 2007)

A customer focused organisation (Slater & Narver, 2000), acknowledges the importance of the customer, and sets operation standards and targets that ultimately ensure customers' needs are satisfied. The customer is vital in the success of an enterprise and no business can exist without a customer. (Adebanjo & Kehoe, 2001; Mokhtar, 2013). The fundamental objective of TQM is emphasized on customers' present and underlying needs by providing them with quality products and services (Stevenson, 2007). Customer-driven quality should be the focus of any organisation and there should be constant and effective communication between customers and the organisation (Arawati & Joiner, 2007).

According to Mehra, Hoffman and Sirias (2001) TQM is a customer-oriented strategy that is focused on customer loyalty, business success, generating higher profit and competitiveness. An organisation's customer orientation should be driven with the procedures and practices which ensure that products and services are delivered with the objective of focusing on customer needs (Milakovich, 1990). Parzinger and Nath (2000) state that focusing on customers makes TQM a mission accomplished. For instance Toyota designs their vehicles according to the needs of customers and not by the option of the top executives (Liker, 2004; Liker & David, 2007).
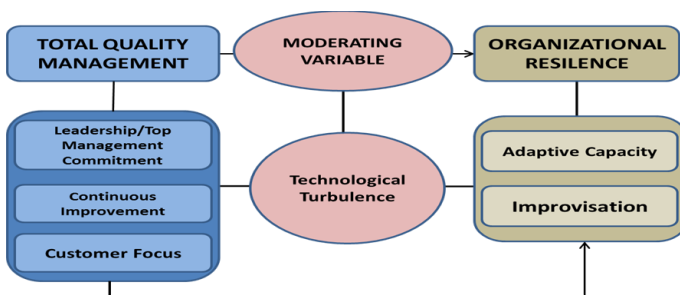
2.7 Conceptual Model

Figure 1: Conceptual Framework – Total Quality Management and Organizational Resilience.
Source: Research Desk, 2019

Figure 1.1: Conceptual Framework of the Study

Dimensions of Total Quality Management (management leadership, continuous improvement and customer focus) were adapted from Anderson and Sohal (1999) and Sureshchandar, Rajendran and Anantharaman (2002). Measures of Organisational Resilience (adaptive capacity and improvisation) were adapted from Hollnagel (2010). Moderating variable (Technological Turbulence) was adapted from Kohli and Jarworski (1990).

According to Camp (2001) a conceptual framework is a structure created by the "researcher explaining the progress of the phenomenon within the study". A conceptual framework makes it easier for the researcher to easily identify and define the various terms to be studied (Luse, Mennecke & Townsend, 2012). Furthermore, a conceptual framework is a logical structure, in a

pictorial, visual or graphical method that illustrates how ideas in a study relate to each other (Grant & Osanloo, 2014).

In view of the literature discussed, a conceptual model (see figure 1.1) for the agricultural sector in Rivers State, Nigeria, presents the nexus between the dimensions of Total Quality Management and Organisational Resilience bounded by Technological Turbulence.

A recommendation was made that this model be adopted and empirically tested in other sectors such as, banking, manufacturing and telecommunications.

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