



# QUALITY MANAGEMENT SYSTEM AND OPERATIONAL AGILITY OF FOOD AND BEVERAGES FIRMS IN RIVERS STATE, NIGERIA

<sup>1</sup>**OFOEGBU, Wilson Chukwuemeka**

<sup>1</sup>Department of Management,  
Faculty of Management Sciences,  
University of Port Harcourt, Rivers State, Nigeria.  
<sup>1</sup>wilson.foegbu@uniport.edu.ng

<sup>2</sup>**Laguo Livingstone Gilbert**

*Department of Business Administration,  
Faculty of Management Science,  
Federal University Otuoke, Nigeria*

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| <b>Received:</b> September 10 <sup>th</sup> 2021<br><b>Accepted:</b> October 11 <sup>th</sup> 2021<br><b>Published:</b> November 30 <sup>th</sup> 2021 | This study investigated the connection between quality management system and operational agility of food and beverages firms in Rivers State. The cross-sectional study was performed with a populace size of 126 managers and supervisors of food and beverages firms. The data collected through questionnaire were analyzed using Spearman's Rank Coefficient to find out the connection between the components of quality management system and that of operational agility. The results showed that there is significant and positive connection between the proxies of quality management system and that of operational agility which revealed that quality management system as far as ceaseless improvement and focus on customer in the food and beverages firms' agility functionality is enhanced. It was suggested that food and beverages firms should endeavour to continuously improve its product and services in order to develop agility that would help them adapt to changes in business environment. |
| <b>Keywords:</b> <i>Quality Improvement, Customer Focus, Agile Development, Agile Manufacturing, Quality Management System, Operational Agility</i>    |  |

## INTRODUCTION

The continually changing business climate and globalization of the business world has made it basic for organizations to have the ability to endure influence from both inner and outer environment of the business. To this end, it means quite a bit to be agile to endure the tempestuous and continually changing business environment. Business agility is the capacity of businesses, organizations or firms to have the option to endure and immediately adjust to changes in the business environment. According to Denning (2018), agility is important to for any firm that wants to achieve higher performance in their operations. Denning (2018) further noted that operational agility is concerned with the improvement of customer value in the existing market in relation to changing conditions. Munteanu, et al (2020) defined operational agility as a solution for the sustainability and development of organization in addressing challenges of organizations that contributes to success in a dynamic and competitive environment. It is however worthy of note that one of the ways to enhance operational agility of firms is through proper quality management system. The International

Organisation for Standardisation (ISO) defines Quality Management System (QMS) as a formalized framework that specifies obligations, commitments, and cycles for achieving quality goals and strategies (ISO 9000, 2015). According to Kumarya, Gwarzo, Ahmad, and Halliru (2016), a quality management system consists of policies that are developed in accordance with the particular goals of many business sectors and are routinely reviewed to guarantee system improvement. Subsequently, Ahire (2012) sees quality management system as an incorporated management perspective that points perseveringly at the improvement of cycles and products that is centered at the fulfillment of customers. Oakland (2015) also sees quality management system as those crucial functions that must be achieved by firms in order to realize its mission by a way of categorizing and examining the impacts on the organization. Quality management system should be visible as the structured, obligations, techniques, cycle, resource management and execution of the standards and activities lines that is expected to accomplish the objectives and goals of businesses (Khan, Khan, Sheeraz & Mahmood, 2017). They further



noted that a good quality management system does not result in the profitability, efficient or customer focused in itself, but helps the organization with the ability to perform better in terms of production and sales of its products.

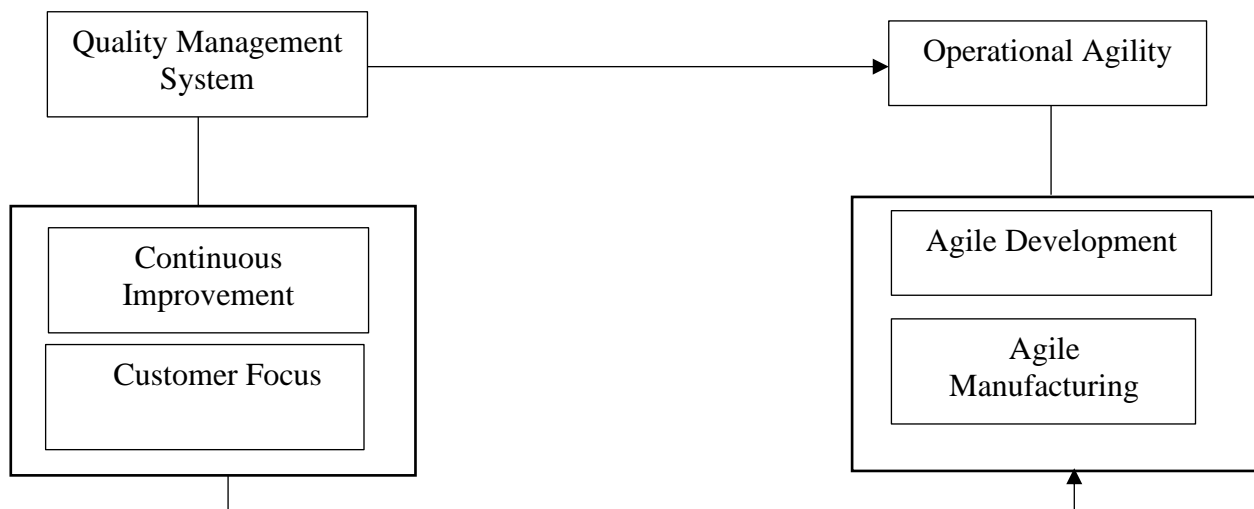
Various studies have examined ways in which operational agility of firms can be enhanced using various concepts and constructs, however there is still paucity of study on how quality management system related with operational agility specifically in food and beverage firms. It is because of this lacuna that this study seeks to analyze the connection between quality management system and operational agility of food and beverages firms in Rivers State, Nigeria.

**STATEMENT OF THE PROBLEM**

The problem of ineffectiveness that have plagued many organizations today has remained a source of concern to managers and researchers alike. The inability of organizations to deal with environmental changes has made many organizations to fold up in no time because the environment in which they operate is always unstable. Franklin (2011) indicates that there is an expansion of value systems by organizations in expectation that this would mean better execution and resulting accomplishment of organizational goal. Compelling quality management system empowers

firms fabricate a standing for having predominant products, which converts into successful operational agility and thriving of the business (Omae & Ndung'u, 2015). A few researches have been conducted on quality management system and operational agility previously. Terziovski and Samson (2013) who investigated the meaning of the association between the quality control processes and organizational performance for an irregular example of assembling firms in New Zealand and Australia. Ater (2013) completed a review to figure out the troubles experienced during the use of quality management in senior schools in Migori Region. Kariuki (2014) researched the connection between the ecosystem activities and the performance of hotels in the Beach front locale in Kenya and uncovered that there are positive outcomes for firms carrying out green activities. Notwithstanding, in spite of the different studies that have been done, just of few have really covered the connection between quality management system and operational agility of food and beverages firms in Rivers State. It is because of this lacuna that this study attempts to look at the relationship that exists between quality management system and operational agility of food and beverages firms in Rivers State, Nigeria.

**Conceptual Framework**



**Figure 1:** A conceptual framework of quality management system and operational agility

**Source:** The dimensions of quality management systems was adopted from Purwihartuti, Sule, Hilmiana and Zusnita (2016) while the measures of operational agility were adapted from Rafael, Luzius and Johannes (2020).

**Aim and Objectives of the Study**

The aim of this study is to analyze the nexus between quality management system and operational agility of

food and beverages firms in Rivers State. In particular, the review objectives are as per the following:



- i. To analyze the nexus between continuous improvement and agile development.
- ii. To explore the connection between customer focus and agile development.
- iii. To ascertain the link between continuous improvement and agile manufacturing.
- iv. To investigate the relationship between customer focus and agile manufacturing.

#### **Research Questions**

- i. What is the nexus between continuous improvement and agile development?
- ii. What is the connection between customer focus and agile development?
- iii. What is the link between continuous improvement and agile manufacturing?
- iv. What is the relationship between customer focus and agile manufacturing?

#### **Research Hypotheses**

- H<sub>01</sub>: There is no nexus between continuous improvement and agile development.
- H<sub>02</sub>: There is no connection between customer focus and agile.
- H<sub>03</sub>: There is no link between continuous improvement and agile.
- H<sub>04</sub>: Customer focus does not significantly relate to agile manufacturing.

#### **Review of Related Literature** **Quality Management System**

Eight core principles underpin a quality management system (QMS): creating value for the organization, its clients, and its suppliers; a customer-focused approach; areas of strength for approach; employee participation; a cycle based approach; a framework based approach; ceaseless improvement; and decision-making grounded in facts (ISO 9000, 2015). According to Kumarya, Gwarzo, Ahmad, and Halliru (2016), a quality management system consists of policies that are developed in accordance with the particular goals of many business sectors and are routinely reviewed to guarantee system improvement. The International Organisation for Standardisation (ISO) defines the Quality Management System (QMS) as a formalised system that outlines duties, obligations, and dynamism for accomplishing organizational objectives and policies (ISO 9000, 2015). Along with an organization's objectives and aims, the system also specifies the resources, procedures, recorded data, and regulations required to establish and run the business. In order to achieve ongoing improvement and boost organisational efficiency, it entails putting certain project-related tasks into action. Consequently, assisting in the planning,

directing, and coordination of an organization's operations to satisfy legal and customer criteria. This gives the company plenty of space to continuously increase its efficacy and efficiency. When companies eliminate faults in all aspects of their operations and provide goods and services that meet customer expectations for quality, they can save money and earn more income. This is the idea behind quality in business. When a company's ability to maintain quality is crucial to its success, quality management systems help them stay up to date with emerging technologies, satisfy customer demands for quality, and retain staff through competitive pay packages.

#### **Continuous Improvement**

To achieve higher company efficiency, reliability, security, ergonomics, and competitiveness, an organisation as a whole should integrate a set of planned, organised, and systematic processes of constant change, which we will define as a continuous improvement system. Boer and Gertsen (2003) defined continuous improvement as a scheduled, organised, and comprehensive process of gradually restructuring all of the company's current processes with the goal of improving overall performance. According to Garcia-Lorenzo and Prado (2003), it is combined with a customer-focused approach and is associated with changes that are typically gradual or progressive. It also indicates minimal expense, is permanent—that is, it never ends—and encompasses the entire firm. Chang (2005) expounded on the continuous improvement cycle, stating that it comprises establishing client requirements, meeting those requirements, evaluating performance, and then revisiting the requirements to identify areas where improvements can be made. Increasing process performance, minimising wastes, streamlining information flow, and optimising facility utilisation are all made possible by continuous improvement initiatives. Additionally, it helps to enhance business operations continuously and raises the effectiveness and productivity of work (Indrawati & Ridwansyah, 2015; Randhawa & Ahuja, 2017; Sidhu, Kumar & Bajaj, 2013).

#### **Customer Focus**

According to Sun and Kim (2013), a company's financial performance can be significantly impacted by its customer focus. According to Nickell et al. (2013), putting the needs of the customer first enhances both the success of businesses and new innovations. It has been recognised that any business aiming to attain a certain level of long-term success must prioritise its customers (Mokhtar, 2013). The phrase "customer



focus" describes satisfying the needs and expectations of both current and potential clients by first fully understanding their needs and then providing clients with believed worth. Value for customers is the goal of a customer-focused approach, as this fosters customer loyalty and, eventually, increases company earnings. To grasp client expectations and demands in today's fiercely competitive corporate contexts, "customer focus" is a fundamental component of design, production, marketing, and service operations. "Voice of the customer" research is the first step in achieving this. Satisfaction with services is contingent upon expectations when viewed through a "customer-focused" lens. By making a comparison between the actual and perceived outcomes, the client evaluates how satisfied they are with the quality of the service. A satisfied consumer can state that high-quality service was provided if the perceived level of service meets or exceeds their expectations. Customer dissatisfaction arises from perceived subpar results, indicating a lack of service quality (Nickell, Rollins & Hellman, 2013).

### **Operational Agility**

Operational agility is the ability of organizations to optimally match its operations and assets to incoming demands from the broader business and strategic side. It comprises the capacity to act quickly and intelligently, carry out adjustments, and enhance operational performance over time. In order to attain operational agility, companies must cultivate a culture of adaptability, teamwork, creativity, and ongoing education at every stage. Operational agility is a system wherein a variety of products with different production schedules are manufactured using automated processes in a way that is comparable to industrial manufacture in terms of prime expense and efficiency (Krupski, 2008). By instantly supplying thorough information, frequently via the use of digital channels, operational agility, as described by Sambamurthy et al. (2003), enables an organisation to eliminate data disparities between customers and sellers. Numerous industries face intense rivalry, necessitating adaptability, speed of delivery, affordability, excellence, and novelty (Reid et al. 2016). Organisations must be broadly classified into three categories—resilience, responsiveness, and efficiency—in order to attain operational agility, according to Tan et al. (2019). To optimise the reaction to market demands, these actions systematically reinforce sound company operations during the response phase. One instance of this is the implementation of planning and control instruments to enhance the understanding of the organisation process (Huang et al., 2012). The business is prepared to go to work and take part in expanding its

competencies, acquiring new clients, breaking into untapped areas, or setting up new manufacturing facilities.

### **Agile Development**

Agile development methodologies utilise a progressive and continuous approach, with a focus on self-organizing, cross-functional teams. The majority of studies conducted in this field focus on how well teams work (Dingsøyr et al. 2012) and how successful related techniques and approaches are (Rigby et al. 2017; Serrador and Pinto 2015). Research on agile teams frequently focuses on physical variation, techniques for learning, and interpersonal connections (Dingsøyr et al. 2012). The wide-scale adoption of agile as a software development methodology began with the creation of the Agile Manifesto (Beck et al., 2001) (Dingsøyr et al., 2012). Agile methods are state-of-the-art in development teams and project work due to their significant advantages (Conforto et al. 2016; Frishammar et al. 2018). Agile development makes extensive use of many input methods, stresses ongoing customer participation, is driven by product characteristics, and typically requires fewer documents (Conboy et al. 2011).

### **Agile Manufacturing**

Gupta and Mittal (1996) define AM as a business model that uses cutting-edge information technologies and adaptable, fluid organisational structures to support highly qualified, informed, and motivated individuals. This allows organisations, people, and innovation to be integrated into an important whole. Agile manufacturing is a concept applied when a company has developed the necessary facilities and procedures to react rapidly to changes in the market and client needs while keeping up with cost and quality control (Volkner & Werners, 2000). Agile manufacturing is the capability to adapt in a timely manner to rapidly changing markets, triggered by customer tailored products to be productive in a competitive environment (Cho, Jung & Kim, 1996). Agile manufacturing is a completely different manner of doing business, not just small-scale continual changes (Kidd, 1996). Agile manufacturing is a term recently used to describe a company's capacity to prosper in the face of continual transformation. It concerns the production of both products and services. According to DeVor, Graves, and Mills (1997), these shifts can take place in commercial partnerships, markets, technology, and every aspect of the company operation. Adapting to the shifting demands of the market through core competency-based alliances, managing change and uncertainty through organisation, and utilising people



and information are all necessary components of agile manufacturing.

### **Empirical Review**

Sadibo, Adesina and Obamuyi (2015) assessed quality management in drug businesses in Nigeria in the midst of the opposition among organizations in the business that offers space for dangers and chances from the external environment, making the requirement for quality management system successful in the market. Ninety-six respondents' data were gathered for the study using a multi-stage sampling technique. Data was gathered via a questionnaire from a subset of Ogun State, Nigeria, pharmaceutical manufacturers. We tested the data using chi-square ( $X^2$ ) at the 0.05 alpha level. The outcome showed that participation from managers, staff, and the organisation as a whole, as well as production output, are significantly impacted by quality management. The study came to the conclusion that producers ought to be able to regulate the factors that affect the quality of goods variation, such as labour, machinery, materials, and methods, in addition to making sure that the best possible manufacturing and packaging procedures are followed.

Mangula and Karugira (2013) evaluate the impact of quality management systems (ISO 9001) confirmation on organizational performance in Tanzania: a case of manufacturing industries in Morogoro. The review took a descriptive approach. Surveys were the primary tool used to gather data on how the Quality Management System (ISO 9001) affirmation impacted the organization's performance with regards to product quality and amount (volume). The mean and standard deviation were utilized in the analysis of the data, and the Chi-square test was utilized for inferential measurements. The outcomes showed that in those organizations having Quality Management System (ISO 9001) certificate, both the amount (volume) and nature of their products have expanded. The study suggested that, in order to increase quality, top management should be dedicated to and proactive in putting into practice the requirements outlined in the ISO 9000 certification, continuous education, and adherence to a teamwork approach.

Noviantoro, et al., (2020) plans to investigate the impact of carrying out the ISO 9001: 2015 quality management system on the performance of clinics in Indonesia. A quantitative research design was utilized, data were gathered utilizing surveys. SEM tool with SmartPLS 3.0 programming was utilized to provide information. The outcome of the review uncovered that customer centered ISO affects medical clinic performance, initiative rule affects clinic performance, employees commitment meaningfully affects clinic

performance, process approach meaningfully affects clinic performance, improvement guideline significantly affects medical clinic performance, proof based independent decision significantly affects clinic performance, relationship management makes a positive difference and important to clinic performance.

Muhwezi, Baguma and Mubiru (2020) analyzed evaluation of quality management practices of building development firms in Uganda: A case of Kamwenge District. A descriptive survey was utilized. Survey was used to gather data from chosen respondents of development firms and Kamwenge local government. Data were analyzed involving descriptive and multivariate examination in SPSS adaptation 25. The discoveries showed that acquisition systems, outsider certification and on-site oversight extraordinarily impacted the expense, timeliness and conveyance of structures consequently influencing the quality management practices.

Adam, Kunya and Abdulmumin (2020) pointed toward surveying quality management practices of building development firms in Jos city. Survey was utilized to gather data. Sample size of 52 and a populace size of 61 were utilized. Data were analyzed utilizing descriptive measurements and relative importance list (RII). As indicated by the review's discoveries, having sufficient site staff (RII=0.87), project control (RII=0.86), and material certification (RII=0.83) were all exceptionally important parts of quality management. Of the exercises that organizations follow to guarantee quality management, on-site checking (RII=0.86), representative instruction with respect to the significance of quality (RII=0.83), and adherence to quality guidelines (RII=0.83) were demonstrated to be the most critical. The investigation likewise discovered that firm size affects how well quality management strategies are followed. The research reached the resolution that the principal practices that organizations should follow to ensure quality administration in building development undertakings are deficient on on-site oversight, client joy, and representative training on the need for quality administration. The paper urges building development organizations to stick near quality administration principles.

### **METHODOLOGY**

The study utilized the cross-sectional survey with a population of 126 managers and supervisors of food and beverages firms in Rivers State. An organized survey was circulated to the respondents to evoke helpful data on the variables under study. Items of each of the



dimensions and measures were measured with four (4) question items each. Quality management system was measured with continuous improvement and customer focus, while operational agility was measured using agile development and agile manufacturing. Data were analyzed utilizing the Spearman's Rank Coefficient.

**RESULTS**

From the 126 copies of questionnaire distributed, 115 copies of questionnaire were retrieved and hence, used for the analysis as follows:

**Table 1: Correlation between Continuous Improvement and Agile Development Correlations**

|                |                        |                         | Continuous Improvement | Agile Development |
|----------------|------------------------|-------------------------|------------------------|-------------------|
| Spearman's rho | Continuous Improvement | Correlation Coefficient | 1.000                  | .543**            |
|                |                        | Sig. (2-tailed)         | .                      | .000              |
|                |                        | N                       | 115                    | 115               |
| Spearman's rho | Agile Development      | Correlation Coefficient | .543**                 | 1.000             |
|                |                        | Sig. (2-tailed)         | .000                   | .                 |
|                |                        | N                       | 115                    | 115               |

\*\* . Correlation is significant at the 0.05 level (2-tailed).

The result from the Table 1 above shows a significant level of 0.000 which implies that (Sig<0.05) and correlation coefficient (rho) = (0.543) also indicates that continuous improvement has strong and positive correlation with agile development of food and beverages firms. We therefore reject the null hypothesis and accept the alternative hypothesis which states that there is a significant nexus between continuous improvement and agile development of food and beverages firms in Rivers State.

**Table 2: Correlation Between Continuous Improvement and Agile Manufacturing Correlations**

|                |                        |                         | Continuous Improvement | Agile Manufacturing |
|----------------|------------------------|-------------------------|------------------------|---------------------|
| Spearman's rho | Continuous Improvement | Correlation Coefficient | 1.000                  | .621**              |
|                |                        | Sig. (2-tailed)         | .                      | .000                |
|                |                        | N                       | 115                    | 115                 |
| Spearman's rho | Agile Manufacturing    | Correlation Coefficient | .621**                 | 1.000               |
|                |                        | Sig. (2-tailed)         | .000                   | .                   |
|                |                        | N                       | 115                    | 115                 |

\*\* . Correlation is significant at the 0.05 level (2-tailed).

The result of the test of hypothesis two, as shown in the Table 2, reveals a significant level of 0.000 which implies that (Sig<0.05) and correlation coefficient (rho) = 0.621 which indicates that continuous improvement has strong and positive correlation with agile manufacturing. We therefore reject the null hypothesis and accept the alternative hypothesis which states that there is a significant connection between continuous improvement and agile manufacturing of food and beverages firms in Rivers State.

**Table 3: Correlation Between Customer Focus and Agile Development Correlations**



|                |                   |                         | Customer Focus | Agile Development |
|----------------|-------------------|-------------------------|----------------|-------------------|
| Spearman's rho | Customer Focus    | Correlation Coefficient | 1.000          | .781**            |
|                |                   | Sig. (2-tailed)         | .              | .000              |
|                |                   | N                       | 115            | 115               |
|                | Agile Development | Correlation Coefficient | .781**         | 1.000             |
|                |                   | Sig. (2-tailed)         | .000           | .                 |
|                |                   | N                       | 115            | 115               |

\*\* . Correlation is significant at the 0.05 level (2-tailed).

The test result from Table 3, reveals that there is a significant level of 0.000 which implies (Sig<0.05) with correlation coefficient (rho) = 0.781 which indicates that customer focus has strong and positive correlation with agile development. We therefore reject the null hypothesis and accept the alternative hypothesis which states that there is a significant link between customer focus and agile development of food and beverages firms in Rivers State.

**Table 4: Correlation Between Customer Focus and Agile Manufacturing Correlations**

|                |                     |                         | Customer Focus | Agile Manufacturing |
|----------------|---------------------|-------------------------|----------------|---------------------|
| Spearman's rho | Customer Focus      | Correlation Coefficient | 1.000          | .721**              |
|                |                     | Sig. (2-tailed)         | .              | .000                |
|                |                     | N                       | 115            | 115                 |
|                | Agile Manufacturing | Correlation Coefficient | .721**         | 1.000               |
|                |                     | Sig. (2-tailed)         | .000           | .                   |
|                |                     | N                       | 115            | 115                 |

\*\* . Correlation is significant at the 0.05 level (2-tailed).

The result in Table 4 above, reveals a significant level of 0.000 which implies that (Sig<0.05) with correlation coefficient (rho) of 0.721 which indicates that customer focus has a positive correlation with agile manufacturing. We therefore reject the null hypothesis and accept the alternative hypothesis which states that there is a significant relationship between customer focus and agile manufacturing of food and beverages firms in Rivers State.

continuous improvement has strong and positive correlation with agile development of food and beverages firms. This implied that there is a positive relationship which aligns with the work of Sadibo, Adesina and Obamuyi (2015) whose study found continuous improvement of production as a way of managing quality to enhance the development of their agility while also enhancing the level of organizational performance.

**DISCUSSION OF FINDINGS**  
**Continuous Improvement and Agile Development**

The result of the test of hypothesis presented in the above table shows a Significant level (Sig) = 0.000 which implies that (Sig<0.05) while Spearman's Correlation Coefficient (rho) = 0.543 also indicates that

**Continuous Improvement and Agile Manufacturing**

The result from the test of hypothesis two, as shown in the table 2, reveals a Significant level (Sig) = 0.000 which implies that (Sig<0.05); while, Spearman's Correlation Coefficient (rho) = 0.621 indicates that continuous improvement has strong and positive



correlation with agile manufacturing. This finding agrees with the study of Muhwezi, Baguma and Mubiru (2020) who noted that continuous improvement practice enhances the quality of production, products and services.

### **Customer Focus and Agile Development**

The test result of hypothesis three as presented in table 3 reveals that there is a Significant level (Sig) = 0.000 which implies (Sig<0.05); while, Spearman's Correlation Coefficient ( $\rho$ ) = 0.781 which indicates that customer focus has a strong and positive correlation with agile development. This finding further validates that of Adam, Kunya and Abdulmumin (2020) who found that identification and satisfaction of customer's needs enhances the level of agility in organizations while also improving customer's experience.

### **Customer Focus and Agile Manufacturing**

The test result of hypothesis four, as shown in the table 4, reveals a significant level of 0.000 which implies that Sig<0.05 with correlation coefficient ( $\rho$ ) of 0.721 which indicates that customer focus has strong and positive correlation with agile manufacturing. This study aligns with the study of Mangula and Karugira (2013) whose study found that the pursue of customers' affinity in decision making enhances the level of production in terms of volume as well as quality of products and services.

### **CONCLUSION AND RECOMMENDATIONS**

Arising from the foregoing, we can deduce that quality management system in terms of continuous improvement and customer focus improved a firm's operational agility in terms of development of agility and manufacturing agility. Therefore, for organizations that desires operational agility, it is important to put in place proper quality management systems. As a way of recommendation,

- i. Food and beverages firms should endeavour to continuously improve its product and services in order to develop agility that would help them adapt to changes in business environment.
- ii. Management of food and beverages firms should make sure there is continuous improvement in order to enhance its manufacturing agility thereby staying ahead of competitors.
- iii. Managers and owners of food and beverages firms should endeavour to focus on the needs of customers in order to

develop agility in the course of their operation.

- iv. Management of food and beverages firms should take customers seriously in taking decision that has to do with the products and services in order to ensure that they are satisfied.

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