



## Electronic-Procurement and Competitiveness of Quoted Foods and Beverages Manufacturing Firms in Nigeria

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***Abstract:** This study empirically examined the effect of e-procurement on competitiveness of quoted foods and beverages manufacturing firms in Nigeria. Specifically, the study examined the effect of e-tendering, e-sourcing, e-invoicing on the competitiveness of quoted foods and beverages manufacturing firms in Nigeria. The study adopted survey design, primary data and secondary data was used. A population of 10,094 employees of quoted food and beverages manufacturing firms was arrived at where the Yamane (1967) formula was used, to determine the sample size of 384 employees. A Likert scaled questionnaire was used as the main tool for data collection and was administered to 384 respondents out of which 354 were retrieved and appropriately filled. Data were analyzed using descriptive statistics (percentages, frequency, mean, standard deviation, skewness and kurtosis) and inferential statistics (correlation and regression analysis). The hypotheses were tested using regression estimates computed with the Statistical Package for Social Sciences (SPSS, Version 25) at 5% level of significance or 95% confidence level. Findings revealed that e-tendering has positive and significant effect on competitiveness of quoted foods and beverages manufacturing firms in Nigeria ( $\beta=0.294$ ;  $t=7.511$ ;  $p=0.000<0.05$ ); that e-sourcing has a negative but significant effect on competitiveness of quoted foods and beverages manufacturing firms in Nigeria ( $\beta=-0.181$ ,  $t=-2.883$ ;  $p=0.004<0.05$ ), and that e-invoicing has a negative and significant effect on competitiveness of quoted foods and beverages manufacturing firms in Nigeria ( $\beta=-0.165$ ,  $t=-3.460$ ;  $p=0.001<0.05$ ). The study, therefore recommended amongst others that despite the negative effects on competitiveness identified in the study, the strategic implementation of e-sourcing and e-invoicing can still offer operational efficiencies – customizing these practices to align with the unique dynamics of the foods and beverages manufacturing industry in Nigeria may help mitigate drawbacks and that given the dynamic nature of technology and market conditions, it is crucial for firms to establish mechanisms for continuous monitoring and adaptation.*

**Keywords:** e-procurement, e-tendering, e-sourcing, e-invoicing, competitiveness, innovativeness, operational efficiency.

### 1.0

### INTRODUCTION

#### 1.1 Background of the study

Organizations all over the world and across all sectors are today experiencing unprecedented pace of change, occasioned by diverse challenges including competition. As a result, businesses are rapidly re-evaluating their operating models and market strategies needed to both withstand these market forces and capitalize on them. Clearly, electronic- Procurement has a significant role to play in helping their organizations achieve their objectives and prepare

for the uncertainty ahead. Globally, e-procurement enhances organizational efficiency by providing better monitoring of procurement activities (Berndt, 2022). This technology compels companies to offer their customers cost-effective total solutions and improved satisfaction through innovative ideas and methods (Berndt, 2022). The rise of Information and Communication Technology (ICT) has driven companies to transition from traditional operations to e-Business, e-procurement practices, and e-Supply Chain philosophies to remain competitive (Shahin, Balouei, and Shahin, 2022). Additionally, e-procurement fosters competitiveness among firms worldwide by facilitating real-time information about demand changes, which is crucial for maintaining optimal production schedules and inventory levels. E-procurement increases competitiveness among firms across the globe in several ways. It allows companies to reach a wider pool of suppliers and customers globally, increasing competition. Online procurement processes are more transparent, making it easier to compare bids and monitor performance, which levels the playing field and encourages competition. E-procurement streamlines processes, reduces paperwork, and enables bulk purchasing, leading to significant cost savings, making companies more price competitive. Electronic processes speed up sourcing, bidding, and purchasing, allowing companies to respond to market demands more quickly, improving competitiveness. E-procurement platforms provide real-time data on demand, spending, and supplier performance, and this data-driven approach helps companies make more informed, competitive decisions (Masudin, *et al*, 2021; Candela and Ulises, 2022).

In Africa, e-procurement is just gaining popularity especially in the public sector. To deal with the problems of lack of accountability and transparency in procurement activities in the public sector, Most African countries have resorted to legal reforms and adoption of e-procurement. Tanzania for instance put into place e-procurement systems to allow e-sharing, e-advertisement, e-submission, e-evaluation, e-contacting, e-payment, e-communication and e-checking and monitoring to ensure all public procurement activities are conducted online (Waganda, 2018). E-procurement has proved to be one of the most effective tools used by manufacturing firms to bring good governance and to improve the procurement practices. While the level of adoption of several technologies is lower compared to that in developed nations, it is worth noting that manufacturing firms in Africa are striving to utilize the available technologies to boost their procurement practices among other business functions (Springer, Cham and Chan, 2022). It has been confirmed that e-procurement not only benefits organizations on cost reduction but also helps organizations to operate with few chosen suppliers of which the implementation will involve the use of Electronic Data Interchange (EDI) and the internet, whereby organizations will be able to search for suppliers while suppliers will get information on what is required by their customers (Berndt, 2022). In addition, it has been revealed that organizations that make maximum use of internet technology are in a better position of reducing non-value-added tasks through the increased speed of information transfer which helps to link all members within a supply chain (Morosan and Jeong, 2008). Another striking result realized by firms which have adopted e-procurement is that successful e-procurement implementation can improve long term competitiveness which means, most organizations see e-procurement as a long-term investment for their entities (Springer, Cham and Chan, 2022).

In Nigeria, businesses are employing e-Procurement as an application hosted by the buying firms to allow users to search for products, place and track orders, receive and pay for purchases. E-Procurement in the country is a deriving benefit attained from technological

enhancements rather than using traditional or manual paper-based method in procurement operations. E-procurement represents a significant and important development in the employment of e-business in supply chain management (Waithaka and Kimani, 2021). Over the years, e-Procurement in the country has emerged as a deriving benefit attained from technological enhancements rather than using traditional paper-based method in procurement operations. E-procurement as a process utilizes internet to purchase goods or services. It is a process by which a business shifts its procurement process online to effectively link up with suppliers and to facilitate the sourcing and ordering process (Berndt, 2022). It ensures the integration of information technology and the use of internet in the procurement process. E-procurement has been identified as one of the most important key ingredients for superior performance and global competitiveness in the foods and beverages manufacturing firms in Nigeria.

With emerging trends of e-procurement has turned to be more diverse than before. E-procurement enables organizations to lower business costs, lower consumption time, streamline consuming processes, and to access broader markets (Berndt, 2022). Firms use e-procurement to create a competitive advantage by reducing the cost and confront the increasing competition in the market. This type of procurement practice allows businesses to remove inefficiencies from their business processes through the use of networked applications where businesses can not only connect with their clients, service providers, employees and partners but also create partnerships where all parties become more productive (Springer, Cham.and Chan, 2022). E-procurement enable all members of the supply chain to make more effective decisions through an understanding of purchasing patterns and consumption over time (Berndt, 2022). It helps a business that uses it to establish their presence and gain access to global or national clients, in areas where they do not have a physical infrastructure. E-procurement has become indispensable ammunition against inefficiencies in the procurement processes across industries (Shahin, Balouei and Shahin, 2022; Ramadhani, Adawiyah and Novandari, 2022).

Procurement is an important element of Business operation and it includes the entire operations considering a requisitioning, transportation, warehousing, and in bound receiving process (Shahin, *et al*, 2022). It is an important business management function that ensures identification, sourcing, access and management of the external resources needed or may be needed by an organization to fulfill its strategic objectives (Berndt, 2022). It exists to explore supply market opportunities and to implement resourcing strategies that deliver the best possible supply outcome to the organization, its stakeholders and customers by applying the science and art of external resource and supply management through a body of knowledge interpreted by competent practitioners and professionals (Karnay and Fatimah 2022). The main aim of procurement is process efficiency. The process of procurement traditionally involved manual procedures and, in some point, handling procurement transactions went through slower systemic processes. Under the traditional system, firms use paper-based system to procure materials and services by searching from paper-based catalogue provided by suppliers. The traditional material procurement process involves generation, copying and transfer of many paper documents. This was however deemed to lack transparency, accountability and fair competition (Karnay and Fatimah, 2022).

Competitiveness simply means a company's ability to produce a product or service in a better way than its competitors. This ability is essential in world of globalized markets, where the customer can usually choose what he or she needs from a variety of options (Christian and

Juan 2021). Competitiveness is seen as a state in which organizations addresses dynamism in the external environment and continue to provide satisfactory products/services to customers which are better than the products offered by other players in the industry (Li and Liu 2014). Competitiveness is evidently a decisive factor for survival in the business world and requires setting priorities, which can be defined as a set of options of varying importance that a firm needs to have to compete in the market over a determined time frame (Santos et al., 1999) as cited in (Obuba and Omoankhanlen 2022). In this study, competitiveness is the firm's ability to produce a product or services in better way than its competitors in an industry which reflects innovativeness and operational efficiency. Innovativeness is the ability of a firm to modify, which can result in the creation of new services, products and processes, has also been used to characterize an organization's capacity for innovation (Raj and Srivastava 2014, Adudu et al., 2023). Operational efficiency portrays the proficiency of firm to curtail the unwelcome and maximizes unique resources capabilities so as to deliver quality products services to its customers in the most effective and efficient manner than its competitors (Adudu *et al* 2020).

The foods and beverages manufacturing industry (FBI) refers to those companies involved in processing raw food materials, alcoholic and non-alcoholic, packaging, and distributing them. This includes fresh, prepared foods as well as packaged foods, and alcoholic and non-alcoholic beverages. Furthermore, manufacturing firms refers to industries concerned with transformation, changing of raw materials, processing and making of new goods or in value addition to existing goods, which the final products can either be sold as finished product or be used as an intermediate product for further processing of other product (Njagi, 2014). The choice of manufacturing firms is credence to their strategic importance to economic growth and development for greater industrialization to the general competitive environment. Nigerian food and beverage manufacturers are increasingly adopting digital procurement strategies to bolster their competitive edge in the market. The utilization of e-procurement, which involves the online procurement of goods and services, has revolutionized conventional procurement approaches by offering significant advantages such as reduced costs, increased transparency, and enhanced operational efficiency (Ogunsiji and Ladanu (2020). These companies have introduced a variety of e-procurement systems to streamline their supply chain activities, decrease delivery lead times, and cut down on procurement costs. Through the integration of e-procurement practices, Nigerian manufacturers now have the ability to tap into a broader pool of suppliers, negotiate more favorable terms, and maintain more accurate and current inventory control measures. This strategic transition not only guarantees compliance with global industry standards but also enables Nigerian food and beverage manufacturers to compete more effectively on both local and global levels, thereby promoting increased levels of innovation and economic progress within the sector, as emphasized by Adebayo and Ogunleye (2022). Therefore, this study seeks to examine the effect of e-procurement and competitiveness of quoted foods and beverages manufacturing firms in Nigeria.

## **1.2 Statement of the Problem**

In Nigeria, manual systems have been confirmed as a source of major inefficiencies in the regulation and operations of the procurement function. Therefore, there is need to adopt ICT in order to ensure proper functioning of the procurement system. To meet today's operating challenges, technical institutions are turning to ICT to improve their services for suppliers and other customers in order to lower operating costs and improve competitiveness. The

contributions of e-procurement to the competitiveness of quoted foods and beverages manufacturing firms in Nigeria has attracted a lot of studies and reviews from researchers, academics, practitioners and professionals. Yet, there are still gaps in the previous studies that demands further investigation on the subject matter including the fact that previous studies have failed to arrive at a common conclusion among many other identified gaps. Nevertheless, it is observed that these quoted foods and beverages manufacturing firms are adopting e-procurement that could enhance their competitiveness in the industry like e-tendering, e-sourcing and e-invoicing, in the industry, some quoted foods and beverages manufacturing firms are reaping the benefits there in, while some are still grappling with competitiveness issues most especially innovativeness and operational efficiency. Whether or not e-procurement has a significant effect on competitiveness of quoted foods and beverages manufacturing firms in Nigeria, and to what extent? This study seeks to investigate.

Again, studying e-procurement in manufacturing companies has not been sufficiently considered in literature even as it is confirmed that quoted Foods and beverages manufacturing firms can achieve a higher degree of productivity, innovation, efficiency and competitive advantage with the use of e-procurement practices which can also result in firm's competitiveness. Moreover, there are numerous disparities in the methodology employed by various studies for data analysis. Additionally, there have been extensive investigations conducted beyond the designated study area. Furthermore, numerous analogous studies were conducted several years ago, such as the study conducted by Carlson in the year 2005. Given the multitude of changes in the global economy, it is imperative to conduct similar studies in the current context to address the prevailing pattern.

Even though previous studies examining the impact of e-procurement on the competitive position of firms have been conducted in various developed and developing countries beyond the borders of Nigeria (Barngatuny and Kimutai, 2015); Maina, 2017), Kiusya, 2018; Kirui, 2019; Tiwari, Chan, *et al*, 2019; Waithaka and Kimani, 2021; (Masudin, *et al*, 2021; Marei, 2022; and there is a dearth of research conducted within Nigeria specifically addressing the competitiveness of quoted foods and beverages manufacturing firms. Instead, the focus of studies conducted within Nigeria Agboyi and Ackah, (2005); (Adebayo and Evans, 2015); Chikwe and Obi, 2016) Ibem, *et al*, 2016; Afolabi, *et al*, 2019; Ibrahim, 2021; (Omogbebe, *et al*, 2022; has primarily been on organizational performance indicators other than competitiveness, thus revealing a significant gap in the literature pertaining to the investigation of e-procurement and its effect on the competitiveness of quoted foods and beverages manufacturing firms in Nigeria. It is against this backdrop that this thesis aims to fill this gap by empirically examining the effect of e-procurement on competitiveness of quoted foods and beverages manufacturing firms in Nigeria.

### **1.3 Objective of the Study**

The main objective of this study is to examine the effect of e-procurement on competitiveness of quoted foods and beverages manufacturing firms in Nigeria. The specific objectives are to:

- i. Examine the effect of e-tendering on competitiveness of quoted foods and beverages manufacturing firms in Nigeria.
- ii. Ascertain the effect of e-sourcing on competitiveness of quoted foods and beverages manufacturing firms in Nigeria.
- iii. Investigate the effect of e-invoicing on competitiveness of quoted foods and beverages manufacturing firms in Nigeria.

#### **1.4 Significance of the Study**

This study will empirically examine the effect of e-procurement on competitiveness of quoted foods and beverages manufacturing firms in Nigeria. The study is significant to a good number of stakeholders including: Government, Procurement entities, competitors, investors, owners and managers of enterprises, policy makers, researchers, academics etc. In pursuance of the stated objectives, the study is divided into five major components. Having addressed the first part of the components which is introduction, part two focuses on review of related literature covering the theoretical, concepts of e-procurement on competitiveness of quoted foods and beverages manufacturing firms in Nigeria. The third section is on methodology employed in carrying out the study. Component four is on results and discussion of findings, component five provides the conclusion and recommendations accordingly. The results and recommendations of the study would contribute towards the unveiling of the contributions of e-procurement on competitiveness of quoted foods and beverages manufacturing firms in Nigeria.

#### **2.0 LITERATURE REVIEW**

The section explores the theoretical framework, conceptual framework and review of the related empirical studies and summary of literature reviewed on the researcher topic.

##### **2.1 Theoretical framework**

This study is however grounded on the Resource-Based View (RBV) theory.

##### **2.1.1 Resource-Based View Theory**

The Resource-Based View Theory was developed first by Penrose in 1959 but was made more popular by the works of Wernerfelt in 1984 and Barney in 1991. The theory is based on the premise that firms differ, even within an industry. The difference occurs in the firm's resources and the main theory is that a firm's strategy should depend on its resources- if a firm is good at something, the firm should try to use (Wernerfelt, 1984). In the resource-based theory (RBV) of the firm, a firm's performance is affected by firm-specific resources and capabilities (Barney, 1996). This implies that, in the RBV, resources are allocated heterogeneously (unevenly) within an industry (Penrose, 1995; Barney, 1991). Organizations therefore must be aware of their strengths and weaknesses, as they have to develop strategies on how to outperform competitors with the given resources' bundles and capabilities (Barney, 1991; Wernerfelt, 1984).

Furthermore, it is argued that a firm's resources are not perfectly mobile across firms" (Barney, 1991). Resources in the RBV and as used in the following refer to a firm's assets, capabilities, organizational processes, firm attributes, information, knowledge, etc. controlled by a firm that enable the firm to conceive of and implement strategies that improve its efficiency and effectiveness (Barney,1991). In other words, they are the "inputs into the production process" (Grant, 1991). Valuable resources and their strategic utilization help to seize opportunities or neutralize threats in an organization's environment (Barney, 1991). The RBV places emphasis on the resources and internal capabilities of a firm as its sources of competitive advantage, essentially viewing the firm as a bundle of resources (Barney, 1991). Since each firm has its own history, has grown over time, acquired assets, skills, and experiences along the way, and cultivated its own distinctive organizational culture, no two companies are alike (Barney, 1991). The optimal combination of these resources and their efficient allocation towards specific problems and opportunities sets a firm apart from the competition. The goal of a resource-based approach is therefore to implement a strategy that is based on the firm's heterogeneous resources and that is not being implemented by competitors. This strategy would provide a sustained advantage due to its inimitability.



As Barney (1991) points out, not all resources have the potential to establish a unique, profitable resource position for the firm. In his widely cited VRIO framework, Barney (1991, 1995, and 1997) identifies four resource characteristics necessary for a resource to be a potential source of sustainable competitive advantage: value, rarity, inimitability, and organization. The most relevant theory to this study is the Resource Based view theory because of its focus on different determinants to explain the e-procurement and Competitiveness of quoted Foods and Beverages Manufacturing Firms. The Resource-Based theory is considered most relevant to this study because it emphasizes that Foods and Beverages Manufacturing Firms should use its distinctive and available resources to develop or key in to e-procurement by utilizing internet services in enhancing efficiency.in order to have a strong competitive advantage position to outperform its competitors in the manufacturing firms.

## **2.2 Conceptual framework**

This section presents a comprehensive clarification of the concepts used in this study as well as in the form they are used. The aim here is to lay a foundation for clear understanding of the study

### **2.2.1 Concept of E- procurement**

Procurement may be conceived as the process, which creates, manages and terminates contract. It is concerned with activities that both precede and follow the signing of a contract. It covers the manner in which goods, services and works are obtained and the manner in which rights are granted and controlled. (Emeakponuzo.,2014), opines that automating processes and workflows associated with purchasing, the firm expects to increase the productivity of its purchasing agents, lower purchase prices of different types of goods and services, streamline the information flow, business processes, and workflows involved in purchasing, eliminate maverick buying (i.e., buying from unauthorized vendors), reduce order fulfillment and processing times, reduce the number of suppliers the firm is dealing with, streamline invoice reconciliation and dispute resolution, reduce the administrative processing cost per purchase order, integrate budgetary controls into the procurement process, minimize human errors in the buying and shipping processes, and monitoring and regulating buying behavior. As described by Melon (2020), e-procurement represents an intervention utilizing Information and Communication Technology (ICT) within the procurement realm of an organization. It typically encompasses the entire spectrum of processes, starting from requisitioning materials from users to settling supplier payments. It has today shifted into electronic platform to cope with the realities of modern economy. In modern day competitive and highly dynamic world, businesses have realized the need to be well informed with developments using technology to operate which among other things, minimizes cost. This therefore call for the use and application of e-procurement to raise productivity as well as efficiency of organization business and procurement operations. It has been observed that electronic procurement not only benefits organizations on of cost reduction but also helps organizations to operate with few chosen suppliers of which the implementation will involve the use Electronic Data Interchange (EDI) and the internet, whereby organizations will be able to search for suppliers while be able to search for suppliers while suppliers will get information on what is required by their customers (Emeakponuzo, 2014).

### **2.2.2 Dimensions of E-Procurement**

In this study, E-Procurement practices adopted are E-tendering, E-Sourcing and E-Invoicing, The constructs were adapted from relevant extant researches and adopted for this study.

**i. Electronic tendering:** The revolution of technology has initiated procurement to adapt to new and current technological advancements. Tendering is one of the areas of procurement that became automated to facilitate better procurement performance by not only reducing paperwork but also reducing costs, which is the ultimate aim of any procurement function (Ahmad 2022). E-tendering is the sending of requests for information and prices to suppliers and receiving the responses using the Internet (Daoud, Luay and Ibrahim 2019). E-tendering systems improve proficiency of the process by adopting automation (Abdullahi, *et al*, 2019). This tool is concerned with the publishing of the tender documents towards awarding the tender to the selected supplier (Costa *et al*, 2013). E-tendering is justified on the basis that it assists in identifying opportunities and combines efforts in recognizing an aggregation of different users in and around the organization, reduces the overall cost of the transaction by reducing paperwork, reduces off-contract expenditures by using technology to create awareness of available contracts (Gathima and Njoroge, 2018). The introduction of e-tendering tapped into competitive pricing and encouraged fair marketing methods. It presented the best way of incorporating agricultural markets through a digital and virtual platform. It also enabled automatic commodity auction of agricultural products, provided transparency, reduced transaction time, and also improved market income (Pavithra, Gracy, Raka, and Ganesh, 2018).

**ii. Electronic- Sourcing:** Sourcing strategies is broadly described as a process that directs all sourcing activities toward opportunities that enable an organization to achieve its long-term operational and organizational performance goals Shahn and Balouei (2022). It includes a wide range of activities namely creating an overall strategy for sourcing, evaluating and selecting suppliers, procuring materials/services and managing supplier relationships. If properly structured, sourcing strategies can effectively combine the core competencies of a given firm with the skills and capabilities of its suppliers. Catana, Ahudey and Darteh (2022), pointed out that sourcing strategies differs from traditional purchasing in several important ways; traditional purchasing focuses on purchase price while strategic sourcing focuses on the total cost of ownership; traditional purchasing is transactional while strategic sourcing is collaborative and focused on the management of an ongoing relationship between buyer and supplier. According to Costa *et al*, (2013), sourcing strategy is an approach that an organization adopt in order to reduce value of spending, manage procurement risk and supply market character.

**iii. Electronic –Invoicing:** E-Invoice considered as one of the most implemented financial information systems in recent years. E-Invoice had grown from a system that brings convenience, into a part of the strategy to fulfill corporate expectation. E-Invoice is an electronic tax invoice made through an application or an electronic system. It is an official evidence of Value Added Tax (VAT) collection on taxable goods and services. Previous researchers including Jain, (2018) have highlighted the important benefits of E-Invoice utilization in VAT collection and administration. E-invoices are issued, transmitted, and received via the Internet. The development of e-invoice is a representative example of a cloud-based e-government application. E-invoice implementation brings a lot of advantages for state, management and lower transaction cost for enterprises as well. The implementation of e-invoice help stated agencies govern tax compliance and detect many cases of invoice fraud



and tax evasion. However, there are many disadvantages in implementing e-invoice. The government, scholars, and firms tried to promote and enhance the e-invoice implementation.

### **2.2.3 Concept of Competitiveness of quoted Foods and Beverages Manufacturing Firms in Nigeria**

Competitiveness can be defined as the state in which organizations effectively address the ever-changing dynamics of the external environment and consistently deliver products and services that surpass those offered by their competitors within the industry (Li and Liu, 2014). It is a multifaceted process that involves the decision-making, planning, coordination, and implementation of various actions by the top-level managers in a company, all with the ultimate goal of achieving the set objectives and targets. It is worth noting that decisions made in isolation hold minimal value unless they are followed through with actions that align with the strategic direction of the organization. The globalization of the economy, the dynamic nature of the business environment, the proliferation of competitive firms, and the advancements in information and communication technology, along with its widespread application, have given rise to escalating challenges that compel firms to adopt strategies aimed at enhancing their competitiveness in the markets (Uzoma *et al.*, 2021). This is because the survival and success of firms operating in turbulent and dynamic environments increasingly hinge upon their ability to remain competitive. In such environments, firms must constantly strive to stay ahead of the curve, anticipating and adapting to changes in the market landscape and customer preferences.

### **2.2.4 Measures of Competitiveness of Quoted Foods and Beverages Manufacturing Firms in Nigeria**

This study have specifically chosen to focus on innovativeness and operational efficiency as advanced by Schniederjans *et al* (2014) as measures of competitiveness, which is also supported by the findings of scholars including; (Chalofsky and Krishna, 2012; Adudu *et al.*, 2023). The selection of these particular measures of competitiveness was based on the rationale that they are highly significant and relevant within the context of the foods and beverages sector, while also aligning with the overall objectives and purpose of the study.

**i. Innovativeness:** Innovativeness (INV) is an organization's overall capability of introducing new products to the market or opening new markets by combining strategic orientation with innovative behavior and process. Innovativeness has also been described as an organization's capacity to introduce new processes, products, and ideas and the firm's capacity to innovate, which can lead to the development of new product, services, and processes (Raj and Srivastava, 2014). Innovativeness has been described as the extent to which a firm markets new or improved products and invests in research and development, as well as openness to new ideas, creativity, flexibility, willingness to change, experimentation, and propensity to take risks in the firm's culture (Sommer *et al.*, 2017). Innovativeness is a significant factor to characterize entrepreneurship which could be described as the efforts to discover new opportunities and which comprise experimentation and creativity that results in new products and services, or enhanced technical traits of existing services and products (Hoque *et al.*, 2018).

**ii. Operational Efficiency:** Operational efficiency (OPE) portrays the proficiency of a firm to curtail the unwelcome and maximizes unique resources capabilities so as to deliver quality products and services to its customers in the most effective and efficient manner than its

competitors (Adudu *et al.*, (2020). In broad sense of the word, efficiency refers to the ratio of output to input. In most companies, efficiency is measured through evaluating employees' productivity. This helps a company achieve competitive advantage through costs saving Seyyed *et al.* (2017). According to Sungyuan and Ussahawanitchakit (2015), argued that operational efficiency refers to the capability of an organization to deliver products or services to its customers in the most cost-effective manner possible while still ensuring the high quality of its products, services and support. It looks at an organization's capabilities and performance. It takes care of firm's ability to minimize waste of inputs and maximize resource utilization so as to deliver quality, cheaper products and service to their customers (Nzewi, 2021).

### **2.3 Review of Related Empirical Studies**

Maagi, and Mwakalobo (2023), examined the effect of e-procurement practice on customer satisfaction in public procurement in Tanzania. Particularly the study assessed users' perception on the effect of e-procurement practice on customer satisfaction in public procurement. The study adopted explanatory sequential mixed method involving both quantitative and qualitative data that were collected in two different phases. The population of study include user staff working in five selected procuring entities whereby questionnaires were used to collect quantitative data from respondents who were approached by using simple random sampling technique. From the population, a sample size of 350 respondents were calculated using Taro Yamane (1967) formula, these respondents were selected randomly from five selected public entities that were registered as highest users of e-procurement in Tanzania. A total of 350 questionnaires were distributed to respondents but due to unavoidable circumstances 290 questionnaires were properly filled and returned making a response rate of 82.86%. The study used binary regression model to analyzed and test the significant effect on customer satisfaction under e-procurement. Second, Binary Logistics Regression Model was applied to estimate the effect of independent variable (Tangibility, Responsiveness, Reliability, Empathy and Assurance) on dependent variable (customer satisfaction). The study findings revealed that there is a significant relationship between use of e-procurement and increase in customer satisfaction in procurement. This study examined the effect of e-procurement practice on customer satisfaction in public procurement in Tanzania. The present study examines E-procurement and competitiveness of quoted foods and beverages manufacturing firms in Nigeria.

Gaurs (2023), investigated on the e-procurement implementation in United Arab Emirates: an identification of benefits and challenges in United Arab Emirates. Particularly the study seeks to determine the level of e-procurement implementation in United Arab Emirates: an identification of benefits and challenges. This encompasses various actions and processes, including seeking, sourcing, and negotiating, ordering, receiving, and post-purchase review. As a result of developments in information and communication technology and the explosive growth of the internet, an increasing number of individuals and organizations are connecting. E-procurement is one component of the electronic government systems that numerous governments worldwide are investigating to modernize their operations and keep up with changing times. Based on the findings of a case study and written from the point of view of the United Arab Emirates, this article discusses the benefits gained and the difficulties encountered when implementing an electronic procurement system. This investigation was carried out using a qualitative methodology, with the results of semi-structured face-to-face interviews being analyzed. Interviews were performed with 15 procurement professionals in

the United Arab Emirates who had experience implementing an electronic procurement system. The purpose of conducting a thematic analysis was to get insight and a better grasp of the subject matter. This study identifies the perceived benefits of an e-procurement system, such as effective communication, process visibility, and process mapping. The study also identifies the critical challenges of e-procurement implementation, including system integration and users' acceptance among other factors, in the United Arab Emirates (UAE) context. By tackling these issues, organizations can make an effective E-Procurement system. This study is done in United Arab Emirates while the present study is domiciled in Nigeria.

Nyamari, *et al*, (2023), the study examined electronic tender advertisement system on operational performance of small and medium enterprises in Kenya. Particularly the study investigated electronic tender advertisement system on operational performance of small and medium enterprises in Kenya. The study specific objectives are to evaluate the effect of accessing tenders on website on the operational performance of SMEs in Murang'a county. The study anchored on Schumpeter's theory of entrepreneurship. Descriptive study design was adopted. The study population included 2500 SMEs operating in Murang'a county. The study used Taro Yamane formula to determine a sample size of 189 SMEs. The data collected through the use of SPSS version 23. the study used a multiple regression analysis. The study found that there is a significant effect between E-tender advertisement and SMEs operational performance. The study recommends that there should be easier visibility on upcoming tender contracts, firms should opt advertising tender on the most visited or accessible media platform. This study examines electronic tender advertisement system on operational performance of small and medium enterprises in Kenya. The present study examines the effect of e-tendering on competitiveness of quoted foods and beverages manufacturing firms in Nigeria.

Nyokabi *et al*, (2023), examined the effects of electronic tendering and organizational performance of parastatals in Nakuru County, Kenya. Particularly the study seeks to investigate the effects of electronic tendering and organizational performance of parastatals in Nakuru County, Kenya. The study anchored on the Innovation Diffusion theory. The study total population is 236 employees in the selected departments where sample size of 91 employees was drawn by application of Daniels (1999) sample size formula. Structured questionnaires were used as the main instrument to collect data, out of which 80 respondents gave their responses, an 87.9% response rate. The study confirmed that there was a statistical significance ( $P=.000$ ) between e-tendering, as a supplier management tool, was able to account for a positive marginal significant increase ( $B=.133$ ) in organizational performance. The current study focused on organizational performance of parastatals in Nakuru County, Kenya. The present study focused on competitiveness of quoted foods and beverages manufacturing firms in Nigeria.

Marei (2022), examined the effect of e-procurement on financial performance moderating the role of competitive pressure in Jordan. Particularly the study assessed the predictors and consequences of using e-procurement. Based on resource-based view (RBV) and Technology-Organization-Environment framework (TOE), the study proposed that technological (relative advantage, compatibility, and complexity) and organizational factor (top management support, organizational readiness, and Information System (IS) committee) have significant effect on e-procurement which in turn expected to affect the firm performance. Competitive pressure is proposed as a moderating variable between technological and organizational

factors, and e-procurement. The population of the study includes large companies in Jordan. Purposive sampling was employed to collect the data using a questionnaire. The findings were derived from 221 responses. Data analysis was conducted using SmartPLS. The findings showed that technological (relative advantage, compatibility, and complexity) and organizational (top management support and organizational readiness) have significant effect on e-procurement which in turn affected firm performance. Competitive pressure did not moderate the effect of technological and organizational factors on e-procurement. The findings help the policy makers in Jordan to increase the usage of e-procurement and firm performance by focusing on the benefits and reducing the complexity of using a new technology. The current study is done in Jordan. While the present study is carried out in Nigeria.

Giang, *et al*, (2022), examined the determinant of the effectiveness of e-invoicing implementation in Hanoi. Particularly the study seeks to investigate the determinant of the effectiveness of e-invoicing implementation in Hanoi. The study used a survey design to collect data and analyzed with the support of SPSS 19 software. The study results show that perceived risk explained 54.4 percent of the variant of the dependent variables and three determinants have a positive effect on effectiveness of e-invoice implementation. The current study is on e-invoicing implementation in Hanoi. The present study adopts e-invoicing as one the dimension on competitiveness of quoted foods and beverages manufacturing firms in Nigeria.

### **3.0 METHODOLOGY**

The study used a survey research design. Survey research design is chosen for this study on electronic procurement and competitiveness of quoted foods and beverages manufacturing firms in Nigeria because it allows for the efficient collection of data from a large number of respondents, ensuring a broad and representative sample of the industry. The area of study for this research work is food and beverages manufacturing companies that are quoted on the Nigerian Exchange Group (NGX). In this study, the target population consisted of employees of all the twenty-four (24) quoted foods and beverages manufacturing firms in Nigeria, on Nigerian exchange market as at December, 31, 2022. The preference on the twenty-four (24) quoted foods and beverages manufacturing firms in Nigeria was based on purposive and convenience (see Appendix B). All the twenty-four quoted food and beverage manufacturing firms in Nigeria were studied in order to have a representative sample size. To this end, Yamane (1967) formula was used to compute the sample size from a population of 10,094 management staff of these companies. Thus, the sample size for this study is 384 employees of foods and beverages manufacturing firms in Nigeria. The study adopted purposive sampling technique. Data for this study was collected using structured questionnaire emanating from primary source of data collection. The validity index of 0.571 stood at and overall reliability of 0.813.

A multiple regression model was employed to determine whether a set of independent variables (e-tendering, e-sourcing, e-invoicing,) together predict the dependent factor (competitiveness) of quoted foods and beverages manufacturing firms in Nigeria. In keeping with the research objectives, research questions and hypotheses, the implicit model of the study takes the following form:

$$CMP = f(E - procurement) \quad (2)$$

$$CMP=f(ETD, ESO, EIV) \quad (3)$$

Where: CMP = Competitiveness

ETD = e-tendering

ESO = e-sourcing

EIV = e-invoicing

When Equation (3) is stated explicitly in regression form, we have:

$$CMP = b_0 + b_1ETD + b_2 ESO + b_3 EIV + u$$

Where:  $\beta_0$  = the constant or intercept

$\beta_{1-5}$  = parameter estimates

$\mu$  = the error term

In this study, both descriptive statistics (percentages, frequency counts and mean values) and inferential statistics (correlation and regression analysis) were employed for data analysis. While descriptive statistics were focused on assessing the respondents' characteristics and responses to study questions, inferential statistics was used for test of hypotheses. Multiple Regression analysis was used to test the three hypotheses in order to determine the effect of electronic procurement and competitiveness of quoted foods and beverages manufacturing firms in Nigeria. These analytical tools were computed using a computer-based Statistical Package for Social Sciences (SPSS) version 25. The Multiple Regression Analysis technique aids in determining the extent of the influence exerted by the independent variables on the dependent variable. Furthermore, the research hypotheses formulated were tested through the use of t-statistic at a significance level of 5% (0.05), allowing for an evaluation of the statistical significance of the findings. **Decision rule:** The following decision rule will be used for accepting or rejecting hypotheses. If the p-value (sig.) is greater than 0.05 ( $p > 0.05$ ), the null hypothesis ( $H_0$ ) will be accepted. However, if the p-value (sig.) is less than 0.05 ( $p < 0.05$ ) the null hypothesis ( $H_0$ ) will be rejected and the alternative hypothesis ( $H_1$ ) will be accepted.

#### **4.0 RESULTS AND DISCUSSIONS**

This section deals with data presentation and analysis, test of hypotheses and discussion of findings.

##### **4.1 Data Presentation and Analysis**

The response rate, demographic characteristics of respondents and descriptive statistics of research questions and inferential statistics are presented in this section.

###### **4.1.1 Response Rate by Category of Employees**

The copies of the questionnaire were distributed to different categories of employees of quoted food and beverages manufacturing firms in Nigeria. The results presented in Table 5 show that the copies of the questionnaire distributed to executive officers, general managers, managers, heads of department (HODs), sectional heads, and procurement officers were 24, 24, 120, 120, 72 and 24, respectively, totally 384. However, only a total of 354 copies were retrieved from these employees that is the response rate of 92.19%.

###### **4.1.2 Demographic Characteristics of the Respondents**

This section provides the details of demographic characteristics of the respondents. The respondents who participated in the study were required to indicate their gender, age bracket, educational qualifications, work experience and their position in the organization.

**Table 6: Demographic Characteristics of Respondents**

<b>Characteristics</b>	<b>Distribution</b>	<b>Frequency</b>	<b>Percentage (%)</b>
<b>Gender</b>	Male	189	53.39
	Female	165	46.61
	<b>Total</b>	<b>354</b>	<b>100.0</b>
<b>Age Range</b>	18-27years	73	20.6
	28-37years	115	32.5
	38-47years	86	24.3
	48-57years	70	19.8
	58years & above	10	2.8
	<b>Total</b>	<b>354</b>	<b>100.0</b>
	<b>Educational Qualification</b>	SSCE	25
	OND/NCE	78	22.0
	HND/B.SC.	168	47.5
	PG	65	18.4
	Others	18	5.1
	<b>Total</b>	<b>354</b>	<b>100.0</b>
<b>Work Experience</b>	1-10years	191	54.0
	11-20years	36	10.2
	21-30years	47	13.3
	31-40years	49	13.8
	40years & above	31	8.8
	<b>Total</b>	<b>354</b>	<b>100.0</b>
<b>Position in the Organisation</b>	Executive officer	20	5.6
	General manager	21	5.9
	Manager	108	30.5
	HODs	109	30.7
	Sectional Heads (P)	72	20.3
	Procurement officers	24	6.7
	<b>Total</b>	<b>354</b>	<b>100.0</b>

**Source:** *Researcher's Computations, 2024*

Table 6 has presented the demographic characteristics of the employees working in selected quoted food and beverage manufacturing firms in Nigeria. The analysis reveals that majority of the respondents are males accounting for 53.39% while their female counterparts accounts for 46.61% of the workforce among quoted food and beverage manufacturing firms in Nigeria. The table also shows that significant proportion of these employees, accounting for 32.5%, falls within the age range of 28 and 37 years. This age group is followed closely by employees between the ages of 38 and 47 years, constituting approximately 24% of the total workforce. Furthermore, it is worth noting that employees aged between 18 to 27 years; 48 to 57years and those who are 58 years and above represent 20.6%, 19.8% and 2.8% of the employee population, respectively. The dominant of a young age range of 28 and 37 years underscores the existence of able-bodied workforce among quoted food and beverage manufacturing firms in Nigeria.



Details analysis of the data presented in Table 6 revealed that individuals with different levels of education contribute to the workforce in varying proportions. Specifically, employees with Senior Secondary School Certificate Examination (SSCE) qualifications make up 7.1% of the total workforce. Those with Ordinary National Diploma (OND) or National Certificate of Education (NCE) qualifications constitute 22.0% of the employee population. The majority of the employees, accounting for 47.5%, hold Higher National Diploma (HND) or Bachelor of Science (B.Sc.) degrees. Lastly, individuals with postgraduate degrees and those with other qualifications represent 18.4% and 5.1%, respectively of the total employee count. These findings highlight the prevalence of graduate employees within the quoted foods and beverages manufacturing firms in Nigeria.

Regarding the position held in the organization by respondents in their various quoted food and beverage manufacturing firms in the study area, the results presented in Table 6 show that executive officers, general managers, managers, Heads of Department (HODs), sectional heads and procurement officers, accounted for 5.6%, 5.9%, 30.5%, 30.7%, 20.3% and 6.7% respectively. This clearly shows that majority of the respondents who participated in the survey are equity holders of these quoted foods and beverages manufacturing firms in Nigeria.

**4.1.3 Presentation of Responses on Research Variables**

Responses collected from the respondents on the research variables namely: e-procurement – e-tendering, e-sourcing, e-invoicing, e-payment, e-auctioning; and competitiveness were presented in this sub-section. The results were presented by utilizing a five-point Likert scale, which gauged the level of agreement among the respondents in relation to the posed questions. The scale ranged from strongly agrees, agree, not sure, disagree, to strongly disagree.

**Table 7: Responses on the Effect of E-Tendering on Competitiveness**

E-Tendering	Responses				
	SA(%)	A(%)	NS(%)	D(%)	SD(%)
To ensure competitiveness, my Food and beverage manufacturing firm engages in E-Tendering procurement practice	156(44.1)	54(15.3)	48(13.6)	20(5.6)	76(21.5)
E-Tendering helps my food and beverage manufacturing firms to carry out procurement practices effectively.	101(28.5)	41(11.6)	191(54.0)	19(5.4)	2(6)
My Food and beverage manufacturing firm lays emphasis on the use of open tendering but orders and contracts are given to the candidates who have the potential to successfully achieve under the terms and conditions of the contract.	82(23.2)	120(33.9)	93(26.3)	38(10.7)	21(5.9)
To ensure performance, persons selected to participate in e-tendering in my Food and beverage manufacturing firm have an	13(3.7)	183(51.7)	74(20.9)	0(0)	84(23.7)

acceptable record of business ethics, integrity, experience etc. to qualify.

My Food and beverage manufacturing firm gives all potential candidates an opportunity to tender so as to ensure that procurement action reach as many potential candidates as possible.

133(37.6) 62(17.5) 97(27.4) 27(7.6) 35(9.9)

E-tendering in my Food and beverage manufacturing firm leads to cost savings just as it has potentials for fairer and fuller assessment of tenders with the use of computerized analysis.

106(29.9) 76(21.5) 126(35.6) 13(3.7) 33(9.3)

My food and beverages company's E-tendering plays a key role in ensuring that the best suppliers are selected for a continuous supply of better-quality products and services

79(22.3) 148(41.8) 84(23.7) 0(0) 43(12.1)

In my Food and beverage manufacturing firm E-tendering systems improve proficiency of the process by adopting automation which leads to performance

96(27.1) 70(19.8) 110(31.1) 21(5.9) 57(16.1)

E-tendering in my Food and beverage manufacturing firm is justified on the basis that it assists in identifying opportunities and combines efforts in recognizing an aggregation of different users in and around the organization

95(26.8) 75(21.2) 133(37.6) 16(4.5) 35(9.9)

My company's e-tendering practice reduces the overall cost of the transaction by reducing paperwork reduces off-contract expenditures by using technology to create awareness of available contracts

39(11.0) 136(38.4) 26(7.3) 67(18.9) 86(24.3)

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**Source:** *Field Survey Data & SPSS Output, 2024*

Table 7 presents the responses on the effect of e-tendering on competitiveness of quoted food and beverage manufacturing firms in Nigeria. The responses of the participants on the statement: "to ensure competitiveness, my food and beverage manufacturing firm engages in E-Tendering procurement practice", reveals that 44.1% and 15.3% strongly agreed and agreed, respectively to the statement. This means that to ensure competitiveness, quoted food and beverage manufacturing firms in Nigeria engage in e-tendering procurement practices. On how e-tendering helps food and beverage manufacturing firms to carryout procurement effectively, it was found that a total 40.1% responded positively while 54% were not sure. This show e-tendering somewhat helps companies in the study area to carryout procurement

effectively. The results also show that quoted food and beverage manufacturing firms in Nigeria lays emphasis on the use of open tendering but orders and contracts are given to the candidates who have the potential to successfully achieve under the terms and conditions of the contract (23.2% - strongly agree and 33.9% - agree). Furthermore, the responses revealed that to ensure performance, persons selected to participate in e-tendering in among quoted food and beverage manufacturing firms in Nigeria have an acceptable record of business ethics, integrity, experience etc. to qualify (strongly agree=3.7%; agree = 51.7%). Since, about 55.1% of the participants responded positively, we can deduce that quoted food and beverage manufacturing firms gives all potential candidates opportunity to tender so as to ensure that procurement action reach as many potential candidates as possible.

Regarding the statement: “E-tendering in my Food and beverage manufacturing firm leads to cost savings just as it has potentials for fairer and fuller assessment of tenders with the use of computerized analysis”, the responses presented in Table 7 show that e-tendering among quoted food and beverage manufacturing firms in the study area leads to cost savings just as it has potentials for fairer and fuller assessment of tenders with the use of computerized analysis (29.9% - strongly agree; 21.5% - agree). The results further demonstrate that food and beverage manufacturing firms’ e-tendering plays a key role in ensuring that the best suppliers are selected for a continuous supply of better-quality products, this is because, majority (64.1%) of the respondents responded positively to the statement regarding this construct. On whether e-tendering systems improves proficiency of the process, the results show that 27.1% and 19.8% strongly agree and agree, respectively, giving a total of 46.9% positive response and ‘not sure’ response accounting for 31.1%. This clearly shows that e-tendering systems improve proficiency of the procurement process of quoted food and beverage manufacturing firms in Nigeria by adopting automation which leads to performance. Furthermore, the responses of strongly agree, agree, not sure, disagree and strongly disagree, to the statement: “E-tendering in my Food and beverage manufacturing firm is justified on the basis that it assists in identifying opportunities and combines efforts in recognizing an aggregation of different users in and around the organization”; accounted for 26.8%, 21.2%, 37.6%, 4.5% and 9.9% responses, respectively. This clearly shows that E-tendering among food and beverage manufacturing firms in the study area is justified on the basis that it assists in identifying opportunities and combines efforts in recognizing an aggregation of different users in and around the organization. Finally, the responses of strongly agree, agree, not sure, disagree and strongly disagree accounted for 11.0%, 38.4%, 7.3%, 18.9% and 24.3%, respectively, to the statement “my company’s e-tendering practice reduces the overall cost of the transaction by reducing paperwork reduces off-contract expenditures by using technology to create awareness of available contracts”. Since, majority of the employees responded positively, it suffices to report that e-tendering practices of quoted food and beverage manufacturing firms in Nigeria reduces the overall cost of the transaction by reducing paperwork reduces off-contract expenditures by using technology to create awareness of available contracts.

**Table 8: Responses on E-Sourcing**

E-Sourcing	Responses				
	SA(%)	A(%)	NS(%)	D(%)	SD(%)
In my Food and beverage manufacturing firm, E-sourcing is an important activity	102(28.8)	103(29.1)	130(36.7)	3(0.8)	16(4.5)

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as it dictates the responsiveness of a firm in meeting its customer needs.					
My Food and beverage manufacturing firm directs all E-sourcing activities toward opportunities that enable it to achieve its long-term competitiveness goals	156(44.1)	55(15.5)	48(13.6)	20(5.6)	75(21.2)
To ensure competitiveness Food and beverage manufacturing firm, our E-sourcing practice effectively combine our core competencies with the skills and capabilities of our suppliers.	101(28.5)	41(11.6)	191(54.0)	19(5.4)	2(0.6)
Our e-sourcing process directs all sourcing activities toward opportunities that enable our food and beverage manufacturing firm to achieve its long-term competitive advantage goals.	82(23.2)	120(33.9)	93(26.3)	38(10.7)	21(5.9)
My Food and beverage manufacturing firm has properly structured her e-sourcing strategies to effectively combine our core competencies with the skills and capabilities of its suppliers.	68(19.2)	83(23.4)	98(27.7)	30(8.5)	75(21.2)
My Food and beverage manufacturing firm's e-sourcing practice includes a wide range of activities namely creating an overall strategy for sourcing, evaluating and selecting suppliers, procuring materials /services and managing supplier relationships.	152(42.9)	67(18.9)	28(7.9)	34(9.6)	73(20.6)
To ensure competitiveness, my Food and beverage manufacturing firm's e-sourcing is designed to reduce value of spending, manage procurement risk and supply market character.	136(38.4)	23(6.5)	97(27.4)	10(2.8)	88(24.9)
Our Food and beverage manufacturing firm's E-Sourcing practice improves the Supplier Relations by bringing considerable improvements in transparency and openness between buyers and suppliers hence avoiding collusion as a bad practice.	213(60.2)	7(2.0)	58(16.4)	45(12.7)	31(8.8)
In my Food and beverage manufacturing firm, e-sourcing system facilitates information sharing through interaction and collaboration hence speedy communication and effective feedback so	155(43.8)	34(9.6)	120(33.9)	28(7.9)	17(4.8)

that both suppliers and buyers are aware of every single situation

E-sourcing system in my food and beverage manufacturing firm facilitates adequate supplies that galvanize production and enhance greater market share, which outpaced those of manually sourced supplies companies	18(5.1)	182(51.4)	74(20.9)	0(0)	80(22.6)
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*Source: Field Survey Data & SPSS 25 Output, 2024*

The results of the responses to the effect of e-sourcing on competitiveness are presented in Table 8. A cursory look at these results show that the responses of strongly agree, agree, not sure, disagree and strongly disagree, accounts for 28.8%, 29.1%, 36.7%, 0.8% and 4.5%, respectively regarding the statement “In my Food and beverage manufacturing firm, E-sourcing is an important activity as it dictates the responsiveness of a firm in meeting its customer needs”. This clearly shows that e-sourcing is an important activity as it dictates the responsiveness of a firm in meeting its customer needs. Furthermore, we can deduce that quoted food and beverage manufacturing firms in the study area directs all e-sourcing activities toward opportunities that enable them to achieve their long-term competitiveness goals, since the positive responses of strongly agree and agree accounts for 44.1% and 15.5% to the statement “my foods and beverages manufacturing firm directs all e-sourcing activities toward opportunities that enable it achieve long-term competitiveness goals”. We can deduced based on the results of the responses presented in Table 8, that majority of the respondents are not aware to ensure competitiveness quoted food and beverage companies, their e-sourcing practice must effectively combine their core competencies with the skills and capabilities of their suppliers (since, 54.0% were not sure). The results of the responses regarding e-sourcing and competitiveness further demonstrates that the responses of strongly agree, agree, not sure, disagree and strongly disagree, accounted for 23.2%, 33.9%, 26.3% 10.7% and 5.9%, respectively to the statement “our e-sourcing process directs all sourcing activities toward opportunities that enable our food and beverage manufacturing firm to achieve its long-term operational and organizational performance goals”, thus implying that e-sourcing processes of quoted food and beverage manufacturing firms directs all sourcing activities toward opportunities that enable the companies to achieve their long-term competitive advantage goals. We can also document that quoted food and beverage manufacturing firms in the study area have properly structured their e-sourcing strategies to effectively combine their core competencies with the skills and capabilities of their suppliers. This is because majority of the respondents (42.6%), responded positively to the statement regarding this claim.

Table 8 further shows that the responses to the statement “My Foods and beverages manufacturing firm’s e-sourcing practice includes a wide range of activities namely creating an overall strategy for sourcing, evaluating and selecting suppliers, procuring materials/services and managing supplier relationships”, accounted for 42.9%, 18.9%, 7.9%, 9.6% and 20.6%, for strongly agree, agree, not sure, disagree and strongly disagree, respectively. Thus, quoted food and beverage manufacturing firms’ e-sourcing practices include a wide range of activities namely creating an overall strategy for sourcing, evaluating and selecting suppliers, procuring materials/services and managing supplier relationships. Results of the responses also suggests that to ensure competitiveness, quoted food and

beverage manufacturing firms' e-sourcing is designed to reduce value of spending, manage procurement risk and supply market character (38.4% for strongly agree and 6.5% for agree). Regarding the statement: "Our food and beverage manufacturing firm's e-sourcing practice improves the Supplier Relations by bringing considerable improvements in transparency and openness between buyers and suppliers hence avoiding collusion as a bad practice", the responses for strongly agree, agree, not sure, disagree and strongly disagree, accounted for 60.2%, 2.0%, 16.4%, 12.7% and 8.8%, respectively. This demonstrates that e-sourcing practices improve the supplier relations by bringing considerable improvements in transparency and openness between buyers and suppliers hence avoiding collusion as a bad practice. The results of the responses also show that e-sourcing system facilitates information sharing through interaction and collaboration hence speedy communication and effective feedback so that both suppliers and buyers are aware of every single situation, as the positive responses of strongly agree and agree accounts for 43.8% and 9.6%, respectively. Finally, the results suggest that e-sourcing system facilitates adequate supplies that galvanize production and enhance greater market share, which outpaced those of manually sourced supplies companies. This is because, the positive responses of strongly agree and agree accounted for 5.1% and 51.4%, respectively.

**Table 9: Responses on E-Invoicing**

E-Invoicing	Responses				
	SA(%)	A(%)	NS(%)	D(%)	SD(%)
E-invoicing as used in my food and beverage manufacturing firm are issued, transmitted, and received via the Internet as it brings a lot of advantages for state management and lower transaction cost for enterprises as well.	26(7.3)	31(8.8)	90(25.4)	93(26.3)	114(32.2)
My Food and beverage manufacturing firm's e-invoicing practice leads to an increase in market share, incremental additional sales, a decrease in cost, and time saving.	102(28.8)	103(29.1)	130(36.7)	3(0.8)	16(4.5)
E-invoicing practices in my food and beverage manufacturing firm are indispensable part in implementing e-invoice and user perception on e-invoice risk influence perceived effectiveness of e-invoice.	156(44.1)	54(15.3)	48(13.6)	20(5.6)	76(21.5)
Using e-invoices by my food and beverage manufacturing firm brings many benefits for firms and tax authorities in decreasing transaction costs, managing tax compliance, and increasing tax revenue.	101(28.5)	41(11.6)	191(54.0)	19(5.4)	2(0.6)
The effectiveness of e-invoice in my food and beverage manufacturing firm is that it helps to save costs, expand the market,	136(38.4)	59(16.7)	37(10.5)	37(10.5)	85(24)



raise sales, reduce searching cost, and save time.

The perception of food and beverage manufacturing firm on usefulness, ease of use, and risk positively has positive effects on the effectiveness of e-invoice implementation.

150(42.4) 20(5.6) 97(27.4) 10(2.8) 77(21.8)

E-invoice implementation in food and beverage manufacturing firm leads to an increase in market share, incremental additional sales, a decrease in cost, and time saving.

213(60.2) 6(1.7) 60(16.9) 45(12.7) 30(8.5)

E-Invoice in my food and beverage manufacturing firm is believed to have escalated the company's capability of tax collection since it is more convenient, integrated, transparent, fast, effective, and efficient.

163(46.0) 34(9.6) 106(29.9) 34(9.6) 17(4.8)

In my Food and beverage manufacturing firm, E-Invoicing has become an integral part of the company's performance and is drawing increased attention from the company.

38(10.7) 190(53.7)  
) 46(13.0) 5(1.41) 75(21.19)  
)

My Food and beverage manufacturing firm's E-Invoicing practices are based on the need to make the best possible use of the company's funds, while conducting procurement with honest and fairness.

93(26.3) 120(33.9)  
) 82(23.2) 38(10.7) 21(5.9)

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**Source:** *Field Survey Data & SPSS Output, 2024*

The responses on the effect of e-invoicing on competitiveness are presented in Table 9. The results of these responses regarding the statement: "E-invoicing as used in my food and beverage manufacturing firm are issued, transmitted, and received via the Internet as it brings a lot of advantages for state management and lower transaction cost for enterprises as well", revealed that the responses of strongly agree, agree, not sure, disagree, and strongly disagree accounts for 7.3%, 8.8%, 25.4%, 26.3% and 32.2%, respectively. This suggests that majority of the employees responded negatively to this statement and a substantial number (25.4%) are not sure about it. Further analysis of Table 9 revealed that the responses of strongly agree, agree, not sure, disagree, and strongly disagree to the statement: "My Food and beverage manufacturing firm's e-invoicing practice leads to an increase in market share, incremental additional sales, a decrease in cost, and time saving" accounts for 28.8%, 29.1%, 36.7%, 0.8% and 4.5%, respectively. This suggests that e-invoicing practice leads to an increase in market share, incremental additional sales, a decrease in cost, and time saving. The results of the responses regarding e-invoicing further show that e-invoicing practices of quoted food and beverage manufacturing firm are indispensable part in implementing e-invoice and user perception on e-invoice risk influence perceived effectiveness of e-invoice, because majority of the respondents (59.4%) responded positively to this claim. As revealed by good number

of the respondents (40.1%), using e-invoices brings many benefits for firms and tax authorities in decreasing transaction costs, managing tax compliance, and increasing tax revenue, however, majority of the participants (54%) claim not to be sure of this assertion. The results of the responses further suggests that the effectiveness of e-invoice is that it helps to save costs, expand the market, raise sales, reduce searching cost, and save time. This is revealed by the positive responses of majority of the respondents (55.1%).

In Table 9, we can also deduced that the usefulness, ease of use, and risk positively has positive effects on the effectiveness of e-invoice implementation, because majority of the employees (48%), who are participants in the survey, responded positively to this claim. The analysis of the responses on e-invoicing further suggests that e-invoice implementation in quoted food and beverage companies leads to an increase in market share, incremental additional sales, a decrease in cost, and time saving (60.2% - strongly agree and 1.7% - agree); even as e-invoice is believed to have escalated the company’s capability of tax collection since it is more convenient, integrated, transparent, fast, effective, and efficient (55.6%). Furthermore, the responses suggest that e-invoicing has become an integral part of the company’s performance and is drawing increased attention from the company (64.4%). Finally, as majority of the participants (60.2%) have opined, e-invoicing practices are based on the need to make the best possible use of the company’s funds, while conducting procurement with honest and fairness.

**Table 12: Responses on the Effect of E-Procurement on Competitiveness**

Statements on Competitiveness	Responses				
	SA(%)	A(%)	NS(%)	D(%)	SD(%)
The e-procurement system in our food and beverage manufacturing firm significantly reduces the time required to complete procurement processes, thus enhancing competitiveness.	144(40.7)	54(15.3)	48(13.6)	25(7.1)	83(23.4)
The implementation of e-procurement has resulted in noticeable cost savings for our food and beverage manufacturing firm in terms of procurement-related expenses.	101(28.5)	40(11.3)	197(55.6)	14(4)	2(0.6)
Our e-procurement system facilitates effective communication and collaboration with our suppliers, contributing to positive and strategic relationships that enhance competitiveness	82(23.2)	119(33.6)	94(26.6)	38(10.7)	21(5.9)

The e-procurement system seamlessly integrates with other components of our supply chain, enhancing coordination and visibility.	13(3.7)	182(51.4)	67(18.9)	0(0)	92(26.0)
E-procurement tools and practices in our food and beverage manufacturing firm contribute to innovative procurement practices and enhance overall productivity galvanizing competitive advantage	130(36.7)	98(27.7)	90(25.4)	12(3.4)	24(6.8)
The e-procurement system effectively identifies, analyzes, and mitigates risks associated with the procurement process in our food and beverage manufacturing firm.	96(27.1)	43(12.1)	66(18.6)	87(24.6)	62(17.5)
Our e-procurement system ensures robust data security and compliance with relevant data protection and privacy regulations.	112(31.6)	76(21.5)	118(33.3)	1(0.3)	47(13.3)
The e-procurement system provides valuable decision support tools and analytics that enhance informed and strategic decision-making in our procurement processes.	175(49.4)	34(9.6)	91(25.7)	20(5.6)	34(9.6)
Our e-procurement system demonstrates flexibility and adaptability to changing business requirements, market dynamics, and technological advancements.	91(25.7)	35(9.9)	136(38.4)	12(3.4)	80(22.6)
The implementation of e-procurement has positively influenced our organization's competitive position in the market, as reflected in metrics like market share and customer satisfaction.	127(35.9)	102(28.8)	48(13.6)	30(8.5)	47(13.3)

**Source:** *Field Survey Data & SPSS Output, 2024*

In Table 12, the responses on the effect of e-procurement on competitiveness are presented. A cursory look at the results show that the responses of strongly agree, agree, not sure, disagree and strongly disagree, to the statement “the e-procurement system in our food and beverage manufacturing firm significantly reduces the time required to complete procurement processes”; accounted for 40.7%, 15.3%, 13.6%, 7.1% and 23.4%, respectively, which suggests that the e-procurement system in the quoted food and beverage manufacturing firms significantly reduces the time required to complete procurement processes, thus enhancing competitiveness. Regarding the statement “The implementation of e-procurement has resulted in noticeable cost savings for our food and beverage manufacturing firm in terms of procurement-related expenses”, many of the participants’ responses were positive (39.8%), even though majority (55.6%), claimed not to be sure about the claim. The results of responses of competitiveness also show that e-procurement system facilitates effective communication and collaboration with our suppliers, contributing to positive and strategic relationships that enhance competitiveness, as opined by majority positive responses (56.8%) of the participants. Furthermore, the responses results presented in Table 12 show that majority responses (55.1%) of the participants suggest that the e-procurement system seamlessly integrates with other components of supply chain, enhancing coordination and visibility. On the statement “e-procurement tools and practices in our food and beverage manufacturing firm contribute to innovative procurement practices and enhance overall productivity”, the responses of strongly agree, agree, not sure, disagree and strongly disagree, accounted for 36.7%, 27.7%, 25.4%, 3.4% and 6.8%, of which the positive responses (strongly agree and agree) accounts for majority of the responses (64.4%); suggesting that e-procurement tools and practices in quoted food and beverage manufacturing firms contributes to innovative procurement practices and enhance overall productivity galvanizing competitive advantage.

The results of the responses presented in Table 12, however show that majority of the respondents disagreed that e-procurement system effectively identifies, analyzes, and mitigates risks associated with the procurement process in their organizations. On whether e-procurement system ensures robust data security and compliance with relevant data protection and privacy regulations, majority respondents (53.1%) agreed. Furthermore, the responses of strongly agree, agree, not sure, disagree and strongly disagree, to the statement “The e-procurement system provides valuable decision support tools and analytics that enhance informed and strategic decision-making in our procurement processes”, accounted for 49.4%, 9.6%, 25.7%, 5.6% and 9.6%, respectively. This suggests that the e-procurement system provides valuable decision support tools and analytics that enhance informed and strategic decision-making in procurement processes of quoted food and beverage manufacturing firms in Nigeria. The results also show that the responses of strongly agree, agree, not sure, disagree and strongly disagree, to the statement “Our e-procurement system demonstrates flexibility and adaptability to changing business requirements, market dynamics, and technological advancements”, accounted for 25.7%, 9.9%, 38.4%, 3.4% and 22.6%, respectively; with majority of the responses (38.4%) being for the response of ‘not sure’, however, a significant proportion of the responses (35.6%) were for the responses of strongly agree and agree. Finally, the results show majority of the responses (64.7%) support the claim that the implementation of e-procurement has positively influenced competitive

position of quoted food and beverage manufacturing firms in the market, as reflected in metrics like market share and customer satisfaction.

**4.1.4 Descriptive Statistics**

The descriptive statistics, which encompass key measures such as the mean, median, maximum, minimum, standard deviation are presented in Table 13. By including such a diverse array of statistical indicators, the researcher has effectively captured the essence of the data and provided a comprehensive overview of its various properties, enabling subsequent analysis and interpretation.

**Table 13: Descriptive Statistics**

Statistic	ETD	ESO	EIV	CMP
Minimum	1.000	1.000	1.000	1.000
Maximum	5.000	5.000	5.000	5.000
Mean	3.9944	4.2288	3.9605	4.2768
Std. Dev.	1.3611	0.8688	1.0953	0.9414

*Source: Researcher’s Computations from SPSS Version 25 output 2024*

Table 13 presents the descriptive statistics for the variables used in the study. The results show that the mean values for the variables of e-tendering (ETD), e-sourcing (ESO), e-invoicing (EIV), and competitiveness (CMP) are recorded as 3.9944, 4.2288, 3.9605, and 4.2768, respectively. It is worthy to note that the standard deviation values being smaller than two suggest that the datasets remain in close alignment with the expected values.

**4.1.5 Diagnostic Tests**

As a preliminary to regression test, the assumptions underlying the test must be met in order to avoid incorrect regression estimates, which policy outcomes cannot stand the test of time. To this end, the normality test were conducted, and the results discussed in this section. The tests of normality relate to skewness and kurtosis.

**(i) Normality Tests**

The skewness and kurtosis were computed and the results are presented in Table 14.

**Table 14: Skewness and Kurtosis Tests for Normality**

	N	Skewness		Kurtosis	
		Statistic	Std. Error	Statistic	Std. Error
E-Tendering	354	-1.237	.130	3.182	.259
E-Sourcing	354	-.8780	.130	3.106	.259
E-Invoicing	354	-1.144	.130	3.772	.259
Competitiveness	354	-1.316	.130	3.540	.259

*Source: Researcher’s Computation from SPSS 25, output 2024*

When data is distributed normally, aligning with its mean, the skewness typically amounts to zero. Remarkably, the skewness values for all the variables appear to be negatively skewed, which typically do not substantially deviates from those of a normal distribution. The measure of kurtosis for a normal distribution is equal to 3, which quantifies the smoothness and peak of a normal curve. The kurtosis, in essence, provides insight into the concentration of scores

in the tails of a distribution, which is often considered to be average. Table 14 shows that, the variables do not have kurtosis measures that diverge substantially from values characteristic of the normal distribution. The variables generally do not exhibit characteristics of a distribution with a high peak and “fat tails” called leptokurtic ( $k > 3$ ). They also do not have substantially flat-topped curves and “thinner tails” called platykurtic ( $k < 3$ ), but they generally exhibited mesokurtosis ( $k = 3$ ) suggesting a normal distribution.

**4.1.6 Regression Analysis**

This sub-section presents the outcomes of regression analysis for the model under study. The outcomes of the regression model elucidate the extent of impact of the independent variables, namely e-tendering, e-sourcing and e-invoicing, on the dependent variable, which is competitiveness. The outcomes are presented in the form of a model summary, analysis of variance, and parameter estimates (coefficients). The model summary was utilized to ascertain the degree to which the independent variables account for the variations in the dependent variable. The overall significance of the model under study, that is, the significance of the combined impact of the independent variables on the dependent variable, was assessed using the analysis of variance (ANOVA). This was accomplished by comparing the F-statistic with the predetermined significance level (5% significance level). Consequently, if the p-value of the F-statistic is less than 0.05, it can be concluded that the model is significant and can be employed for further statistical analysis, and vice versa. Lastly, the coefficients were calculated.

**Table 17: Model Summary<sup>b</sup>**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.826 <sup>a</sup>	.682	.675	0.72932	1.821

a. Predictors: (Constant), EAU, EIV, ETD

b. Dependent Variable: CMP

**Source:** Researcher’s Computation from SPSS Version 25, output2024.

The results presented in Table 17 show that the R is 0.826 – which implies that there is positive and statistically significant relationship between the dependent variable and the explanatory variables. The R-square ( $R^2$ ) is the square of the multiple correlations coefficient which is used for judging the explanatory power of a model, and often called the coefficient of determination or a measure of the goodness of fit. For a regression model with many explanatory variables, the adjusted  $R^2$  provides a more reliable measure of the goodness of fit because over parameterization of a model affects the degrees of freedom. Hence the use of the  $R^2$  adjusted takes into cognizance the degrees of freedom that are affected by the over-parameterization of a model which occur in the process of model building. The adjusted R-square value of 0.675 implies that even with adjustment, 67.5% of changes in competitiveness are been explained by e-procurement – e-tendering, e-sourcing and e-invoicing. The unexplained variation in competitiveness of quoted foods and beverages manufacturing firms is 32.5%, this is attributed to other factors affecting competitiveness not included in the model of the thesis as well measuring error termed in the model as  $e$ —the stochastic term. The Durbin Watson statistic is used for testing for serial correlation in least-squares regression. Durbin and



Watson (1950) have suggested a test which is applicable for this purpose. In this case, the Durbin-Watson value of 1.821 implies that there is no autocorrelation among the variables of the study.

**Table 18: Analysis of Variance (ANOVA)<sup>a</sup>**

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	1096.295	5	219.259	73.318	.000 <sup>b</sup>
	Residual	1040.706	348	2.991		
	Total	2137.000	353			

a. Dependent Variable: CMP

b. Predictors: (Constant), EAU, EIV, ETD

**Source:** Researcher’s Computation from SPSS, 2024

Table 18 presents the results of the analysis of variance (ANOVA). The F-statistic value of 73.318 with a significant value of 0.000 implies that e-tendering, e-sourcing, e-invoicing, e-payment and e-auctioning; collectively exert significant influence on competitiveness in the study area.

**Table 19: Regression Coefficients**

**Table 4. 5: Regression Coefficients**

Model	Unstandardized Coefficient		Standardized Coefficient		
	B	Standard Error	Beta	T	Sig.
(constant)	3.266	.855		3.822	.000
ETD	.466	.062	.292	7.511	.000
ESO	-.318	.110	-.181	-2.883	.004
EIV	-.350	.101	-.165	-3.460	.001

a. Dependent Variable: CMP

**Source:** Researcher’s Computation from SPSS, 2024.

The regression coefficients presented in Table 19 show that e-tendering (ETD) has a positive effect on competitiveness of quoted food and beverages manufacturing firms in Nigeria as revealed by the coefficient of 0.466. This means that a unit increase in e-tendering results in 0.466 units increase in competitiveness of these quoted food and beverages manufacturing firms and vice versa. The effect of e-tendering on competitiveness is statistically significant at the 5% level of significance, since the significant value of 0.000 is less than the 0.05 (5%) level of significance. The t-statistic value of 7.511 further buttress this significance, since the calculated value (7.511) falls in the rejection region. The results presented in Table 19 further show that there is a negative relationship between e-sourcing (ESO) and competitiveness (CMP) of quoted food and beverages manufacturing firms in Nigeria. The coefficient of -0.318 implies that a unit increase in e-sourcing leads to 0.318 decrease in competitiveness of these manufacturing firms, on one hand. On the other hand, a one unit decrease in e-sourcing leads to 0.318 units increase in competitiveness. This effect is however, statistically significant at the 5% level of significance (p=0.004<0.05). Contrary to expectations, e-invoicing (EIV) exerted negative influence on competitiveness (CMP) of quoted food and beverages manufacturing firms in the study area. The calculated coefficient of -0.350 implies that when there is a one unit increase in e-invoicing, the competitiveness of these firms will decrease by 0.350 units. The reported significant value of 0.001 indicates that the effect of e-invoicing on competitiveness is statistically significant at 5% level of significance since the significant value

of 0.001 is less than the 0.05 (5%) level of significance. The t-statistic of -3.460 and the low standard error of 0.101 further substantiate this significance.

#### **4.2 Test of Hypotheses and Discussion of Findings**

In this section, the five hypotheses formulated earlier were tested. The results of the multiple linear regression analysis show that all the explanatory variables; e-tendering, e-sourcing and e-invoicing have significant effect on competitiveness. The hypotheses were tested using the t-statistics and p-values of each of the variable. The hypotheses were tested at 5% level of significance and the decision rule is that if the calculated t-statistic lies between the negative and positive critical values ( $\mp 1.960$ , for a two-tailed test; see Appendix F for the critical value of t-statistic) or p-value is greater than 0.05, 5% level of significance, we accept the null hypothesis. On the other hand, if the calculated t-statistic is less than the negative critical value or greater than the positive critical value ( $\mp 1.960$ ) or p-value less than 0.05, 5% level of significance, we reject the null hypothesis.

##### **Test of Hypothesis One**

**H<sub>01</sub>:** E-tendering has no significant effect on competitiveness of quoted foods and beverages manufacturing firms in Nigeria. To test the effect of e-tendering on competitiveness of quoted foods and beverages manufacturing firms in Nigeria, the results of Table 19 were used. The results show that the coefficient of e-tendering (ETD) with a coefficient of 0.294 has a corresponding t-statistic of 7.511 and a probability value of 0.000. Since the p-value is less than 0.05 ( $0.000 < 0.05$ ) and the t-statistic is greater than 1.960 ( $7.511 > 1.960$ ) [see Appendix F for the critical value of t-statistic] e-tendering have significant effect on competitiveness of quoted foods and beverages manufacturing firms in Nigeria. Thus, we reject null hypothesis one. The findings of this thesis contradict with those of Marei (2022) who found that technological (relative advantage, compatibility, and complexity) and organizational (top management support and organizational readiness) have significant effect on e-procurement which in turn affected firm performance. Further positing that competitive pressure did not moderate the effect of technological and organizational factors on e-procurement. This finding may have been the case due to the variation in geographical scope between Marei's (2022) study and the present study. Nevertheless, the findings of this thesis are in agreement with the studies conducted separately by Boafo, Ahudey, and Darteh (2020); Gaur (2023); and Maagi and Mwakalobo (2023), who ascertained that electronic procurement has a significant and beneficial impact on organizational performance.

##### **Test of Hypothesis Two**

**H<sub>02</sub>:** E-sourcing has no significant effect on competitiveness of quoted foods and beverages manufacturing firms in Nigeria. The results of the regression coefficients presented in Table 19 were also used to test the effect of e-sourcing on competitiveness. The results show that e-sourcing has a standardized beta coefficient of -0.181, with a corresponding t-statistic of -2.883 and a probability value of 0.004. Since the calculated t-statistic is less than the negative critical value of t at 5% level ( $-2.883 < -1.960$ ) and the p-value is less than 0.05 ( $0.004 < 0.05$ ), the effect of e-sourcing on competitiveness is statistically significant at 5% level of significance. Therefore, the null hypothesis is rejected and its alternative accepted. The findings of this specific study are contradictory with the conclusions by a number of other academics in the field. Research has been undertaken by Kimutai (2019) who reported that e-supplier identification, e-supplier evaluation all have positive and significant effect on procurement costs. Similarly, in another study, Kimutai and Ismael (2016) assess the role of strategic e-sourcing practices on supply chain performance in state corporations in Kenya and found that

organization ICT integration is important in impacting customer service, total cost and return on investment while it is slightly important in impacting speed of delivery and return on investment. The findings of this thesis are also inconsistent with those of Patrick and Prince (2018) who found that MTN Rwanda adopted e-Sourcing to manage some of its Supply Chain operations though it has not been integrated with other systems working in silos and that the integration with Spend Analysis Software and ERP would perfectly automate the overall Supply Chain operations thus resulting in supply Chain efficiency. Furthermore, Mutua and Juma (2018) found that proper sourcing strategies greatly improve the performance of these institutions. It was also found out that an increasing reliance on suppliers leads businesses to be more exposed to uncertain events, which explained why supplier selection is a critical process in procurement performance.

### **Test of Hypothesis Three**

**H<sub>03</sub>:** E-invoicing has no significant effect on competitiveness of quoted foods and beverages manufacturing firms in Nigeria. The results of the regression coefficients presented in Table 19 show that e-invoicing has a standardized beta coefficient of -0.165, with a corresponding t-statistic of -3.460 and a probability value of 0.001. Since the calculated t-statistic is less than the negative critical value of t at 5% level ( $-3.460 < -1.960$ ), and the p-value is less than 0.05 ( $0.001 < 0.05$ ), the effect of e-invoicing on competitiveness is statistically significant at 5% level of significance. Thus, the null hypothesis is rejected and its alternative accepted. This implies that e-invoicing has significant effect on competitiveness of quoted foods and beverages manufacturing firms in Nigeria. The findings made in the course of this thesis stands in direct opposition to the findings put forth by Mutunga and Makhamara (2020), whose research indicated that the implementation of e-invoicing has a positive and significant effect on the performance of small and medium-sized enterprises (SMEs) within the confines of Nairobi, Kenya. It is important to note that Giang, Binh, and Nga (2022), also reported similarly contradictory findings in their examination of the factors that determine the effectiveness of e-invoicing implementation. Their study revealed that perceived risk accounted for a significant proportion, namely 54.4 percent, of the variation observed in the dependent variables. Furthermore, the researchers identified three particular determinants that exerted a positive influence on the effectiveness of e-invoice implementation. Interestingly, Amalina and Suryani (2020) embarked on their own investigation into the success of E-invoice implementation, focusing on a state-owned enterprise and utilizing the Delone and Mclean IS success Model in their analysis. Their findings, derived from research conducted in Indonesia, brought to light the significant impact of Information Quality and System Quality on user satisfaction. In sum, these contradictory findings might have been so on the bases of scope.

## **5.0 CONCLUSION AND RECOMMENDATIONS**

This section presents conclusion and policy recommendations that are in line with these specific objectives of the study as well as suggestions for further studies that are considered important for the extension of the research.

### **5.1 Conclusion**

In conclusion, the comprehensive findings of this research provide valuable insights into the intricate and multifaceted effects of various e-procurement practices on the competitiveness of quoted foods and beverages manufacturing firms in Nigeria. This study serves to illuminate the nuanced nature of these impacts, shedding light on the diverse ways in which different

electronic procurement processes can shape the competitive landscape of this industry. It can also be concluded that e-tendering emerges as a formidable force within the realm of e-procurement, exerting a significant and positive influence on the competitiveness of quoted firms in the foods and beverages manufacturing sector. The significant enhancement of competitiveness that stems from the adoption of e-tendering underscores the immense potential benefits associated with leveraging electronic tendering processes in the procurement activities of this industry and beyond. On the other hand, the research also draws attention to the contrasting effects of e-sourcing and e-invoicing, both of which exhibit negative but significant effects on competitiveness. This serves as a crucial reminder that careful consideration and strategic planning are imperative when it comes to the implementation of these electronic procurement practices within the specific context of the Nigerian foods and beverages manufacturing sector. The findings imply that a nuanced and well-thought-out approach is required to navigate the potential pitfalls associated with e-sourcing and e-invoicing, in order to mitigate their negative impacts on competitiveness. Finally, the research also highlights the positive and significant influence of E-payment and e-auctioning on competitiveness. These findings underscore the importance of embracing digital payment systems and electronic auction platforms as integral components of the overall procurement strategy of quoted firms in the foods and beverages manufacturing industry. By incorporating E-payment and e-auctioning into their operations, these firms can further enhance their competitive position and capitalize on the benefits offered by these electronic procurement practices. Given the complex and multifaceted nature of the effects of e-procurement practices on competitiveness, it is of utmost importance for stakeholders in the foods and beverages manufacturing sector in Nigeria to adopt a nuanced and sophisticated approach when incorporating these practices into their business operations.

## **5.2 Recommendations**

Based on the research findings, several recommendations emerge from foods and beverages manufacturing firms and other industries in Nigeria aiming to optimize the impact of e-procurement practices on competitiveness.

- i. The government and industry regulators should mandate the adoption of e-tendering processes for all procurement activities within the foods and beverages manufacturing sector. Additionally, they should promote the benefits of e-tendering through workshops, training sessions, and incentives such as tax breaks or grants for companies that fully integrate e-tendering systems. This will enhance transparency, reduce corruption, and foster a more competitive business environment.
- ii. To address the negative impact of e-sourcing on competitiveness of foods and beverages manufacturing firms in Nigeria should adopt new technologies to improve the existing e-sourcing platforms to make them more user-friendly and efficient. This includes enhancing the technological infrastructure and providing comprehensive training programs for employees to effectively use e-sourcing tools. Furthermore, a feedback mechanism should be established to continuously gather user input and improve the system based on their needs.
- iii. The negative effect of e-invoicing among foods and beverages manufacturing firms in Nigeria can be mitigated by standardizing e-invoicing processes across the industry to ensure consistency and reliability. This involves creating a unified framework for e-invoicing, including guidelines and standards for implementation. Additionally,

improving cybersecurity measures to protect sensitive financial data and prevent fraud is crucial. Regular audits and updates to the e-invoicing systems can help maintain their integrity and effectiveness.

### **5.3 Limitations and Suggestions for Further Studies**

Undoubtedly, research of this nature and magnitude requires enormous funds and time which was not easy to come by. Some valuable information may not have been collected because the resources were not at the disposal of the researcher even though foods and beverages manufacturing firms are spread across the length and breadth of the Nigerian exchange, the study was a deliberate attempt to reduce this challenge by carefully economizing the available resources. However, regardless of all these limitations, this study provided a worthwhile evaluation of the effect of e-procurement on competitiveness of quoted foods and beverages manufacturing firms in Nigeria. This study is no doubt one of the very few of its kind in the study area and, findings indicated some level of positive and significant effect on the construct studied. It therefore, provides good base for appraising e-procurement and competitiveness of quoted foods and beverages manufacturing firms studied. The area covered was sufficient to provide the relevant background for optimizing future decisions on these important issues and draw valid conclusions. The identified limitations in the current study open up promising avenues for future research, inviting scholars to explore and enhance our understanding of the intricate relationship between e-procurement and competitiveness of organizations.

The effect of e-procurement and competitiveness of unquoted foods and beverages manufacturing firms in Nigeria needs attention in order to see how the adoption and practice of e-procurement will enhance competitiveness in their firms. Further, it is possible to extend the scope of the study to cover a larger geographical area other than the Nigerian exchange group as this would ensure the generalizability of the research conclusions. Addressing participant bias is another vital aspect that warrants attention in future studies. Employing advanced methodologies, such as qualitative approaches or experimental designs, could mitigate biases in participant responses, leading to more accurate and reliable insights. Exploring innovative data collection methods and third-party interventions may further enhance the credibility of findings, ensuring a more authentic reflection of the impact of e-procurement practices on competitiveness. Expanding the scope of investigation to include diverse industries and regions is crucial for developing universally applicable insights. Comparative studies across sectors and countries could reveal contextual nuances influencing the relationship between e-procurement practices and competitiveness. Additionally, longitudinal studies tracking changes over time would provide a dynamic perspective on the evolving impact of technology and market conditions, aiding in anticipating future trends and adapting strategies accordingly.

### **5.5 Contribution to Knowledge**

The study revealed that e-sourcing as a dimension of electronic procurement with a p-value of 0.004 has a negative effect on the competitiveness of quoted foods and beverages manufacturing firms in Nigeria. As against e-tendering and e-invoicing with p-values of 0.000 and 0.001 respectively.

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