



## E-Procurement Systems and Supply Chain Effectiveness of Manufacturing Firms in Rivers State

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**Abstract:** This study examines the influence of E-procurement systems for organisational performance of manufacturing firms in Port Harcourt. This study adopted a descriptive survey research design as the study seek to determine the influence of E-procurement systems on performance of manufacturing firms in Port Harcourt. The population of the study consisted of 11 firms in Port Harcourt. The study adopted a census population. 3Managers were selected from each firm multiplied 11 firms give us a total of 33 respondents under study. Structured questionnaire instrument title” the E-procurement systems for performance questionnaire “was developed on five-point likert scale. The primary data for this study were generated through questionnaire and hypotheses were tested using regression analysis on SPSS. The study revealed that distribution planning significantly influences profitability of manufacturing firms in Port Harcourt, distribution planning significantly influences resources utilization of manufacturing firms in Port Harcourt, route optimization significantly influences profitability of manufacturing firms in Port Harcourt, route optimization significantly influences resources utilization of manufacturing firms in Port Harcourt. The study concluded that E-procurement systems significantly influences performance of manufacturing firms in Port Harcourt. The study recommended among others that manufacturing firms in Port Harcourt should invest in advanced transportation modeling software to optimize their distribution networks.

**Keywords:** E-Procurement, Supply Chain, Firm, census population, likert scale.

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## BACKGROUND OF THE STUDY

The integration of e-procurement systems in supply chain management has transformed the operational dynamics of manufacturing firms globally. E-procurement, which involves the use of electronic systems to acquire goods and services, enhances the efficiency, transparency, and cost-effectiveness of procurement processes (Croom & Brandon-Jones, 2007). In Rivers State, the adoption of e-procurement systems by manufacturing firms is

increasingly recognized as a critical factor for improving supply chain effectiveness amidst various operational challenges (Gunasekaran, McGaughey, & Ngai, 2009).

E-procurement systems streamline procurement activities by facilitating online transactions between buyers and suppliers, thus reducing the need for manual paperwork and enabling faster decision-making (Neef, 2001). These systems offer significant benefits such as reduced

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procurement cycle times, lower transaction costs, and improved supplier relationships (Davila, Gupta, & Palmer, 2003). For manufacturing firms in Rivers State, where traditional procurement methods often lead to delays and increased costs, the implementation of e-procurement systems can substantially enhance operational efficiency (Koch, 2005).

The transparency provided by e-procurement systems is another critical advantage that can address corruption and inefficiencies prevalent in traditional procurement practices (Vaidya, Sajeev, & Callender, 2006). By digitizing procurement processes, firms can ensure greater accountability and traceability of transactions, which is particularly important in regions like Rivers State where regulatory compliance and ethical practices are vital (Carayannis & Popescu, 2005). This increased transparency helps in mitigating risks associated with procurement fraud and promotes a fair competitive environment among suppliers (Mose, Njihia, & Magutu, 2013).

Moreover, e-procurement systems facilitate better data management and analytics, enabling firms to make informed decisions based on real-time information (Barua, Konana, Whinston, & Yin, 2004). Manufacturing firms in Rivers State can leverage these capabilities to optimize their inventory levels, forecast demand accurately, and negotiate better terms with suppliers (Subramaniam & Shaw, 2002). The ability to access and analyze procurement data enhances.

### Statement of the Problem

The effectiveness of supply chains in manufacturing firms significantly influences their operational performance and competitive advantage. In River State, the manufacturing sector faces unique challenges that hinder the efficiency of supply chains. These include infrastructural deficits, regulatory bottlenecks, and logistical inefficiencies, which are common in many developing regions (Christopher, 2016). Consequently, these issues can lead to increased operational costs, delays in production, and reduced customer satisfaction (Mentzer *et al.*, 2001).

Infrastructural challenges are a significant concern for manufacturing firms in River State. Poor road networks, unreliable power supply, and inadequate storage facilities are prevalent issues that disrupt the smooth flow of goods and materials (Bowersox, Closs, & Cooper, 2007). For instance, frequent power outages can halt production lines, while deteriorating road conditions can cause delays in the transportation of raw materials and finished products (Lambert, Cooper, & Pagh, 1998). Such infrastructural inadequacies necessitate robust

supply chain strategies to mitigate these disruptions (Simchi-Levi, Kaminsky, & Simchi-Levi, 2007).

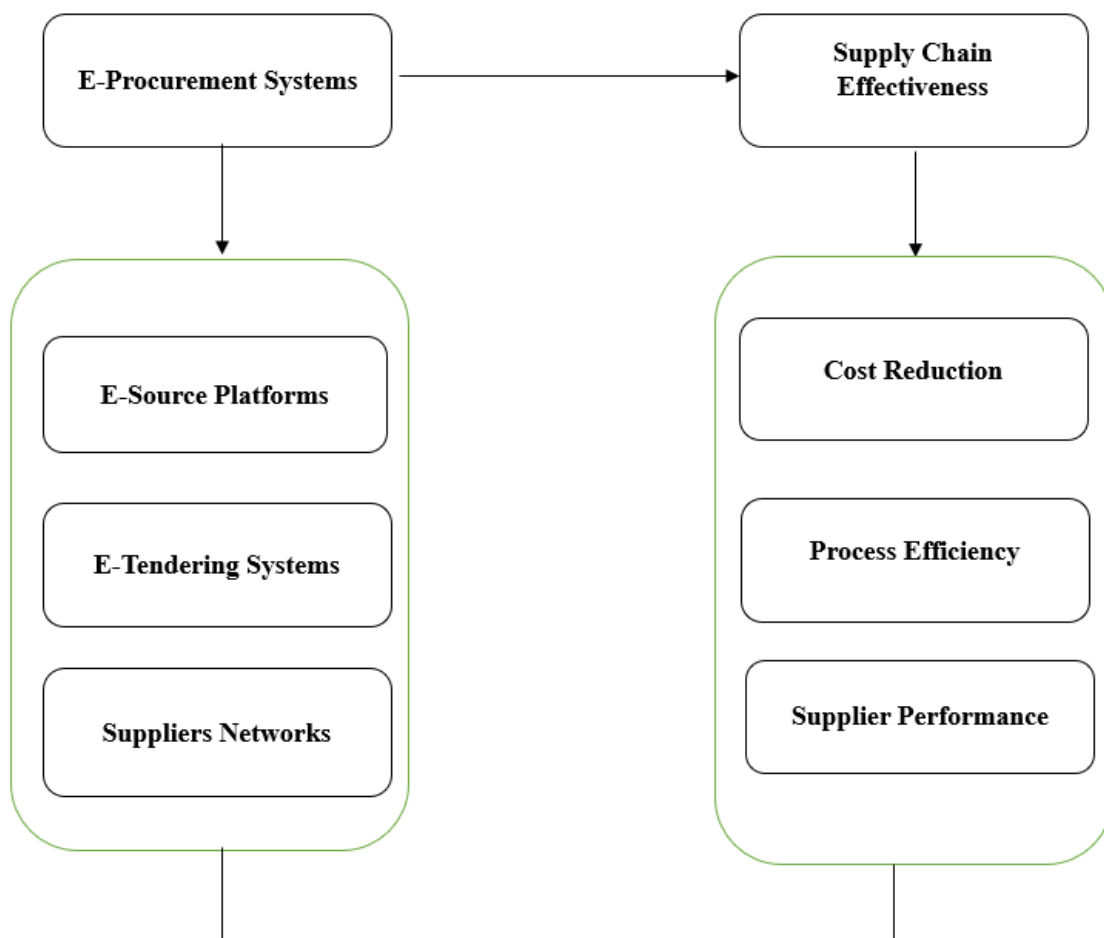
Regulatory challenges also pose significant obstacles to supply chain effectiveness in River State. Complex and often opaque regulatory frameworks can slow down the importation of essential raw materials and exportation of finished goods (Rushton, Croucher, & Baker, 2014). Manufacturers must navigate through extensive paperwork and bureaucratic procedures, which can lead to delays and increased costs (Handfield & Nichols, 2002). These regulatory hurdles can adversely affect the agility and responsiveness of supply chains, making it difficult for firms to adapt quickly to market changes (Fawcett, Ellram, & Ogden, 2007).

Logistical inefficiencies further complicate supply chain operations for manufacturing firms in River State. Inadequate transportation infrastructure and limited access to advanced logistics technologies impede the efficient movement of goods (Harrison & Van Hoek, 2008). Additionally, the lack of professional logistics service providers exacerbates the problem, as firms often struggle to find reliable partners to handle their supply chain activities (Waters, 2003). This situation is aggravated by the high cost of logistics services, which increases the overall operational expenses for manufacturers (Chopra & Meindl, 2016).

Moreover, the volatility of the local economic environment can significantly impact supply chain effectiveness. Fluctuations in exchange rates, inflation, and other economic indicators create an unpredictable business environment (Slack, Brandon-Jones, & Johnston, 2016). Manufacturing firms must constantly adapt their supply chain strategies to cope with these economic uncertainties, which can strain their resources and capabilities (Carter & Easton, 2011). Effective supply chain management practices are essential for firms to maintain resilience and sustain their competitive edge in such a volatile environment (Christopher & Holweg, 2011).

In summary, the supply chain effectiveness of manufacturing firms in River State is compromised by infrastructural challenges, regulatory barriers, logistical inefficiencies, and economic volatility. Addressing these issues requires comprehensive and adaptive supply chain strategies that enhance operational efficiency and responsiveness (Mentzer, Stank, & Esper, 2008). By identifying and mitigating these challenges, manufacturing firms can improve their supply chain performance and achieve sustainable growth in the competitive market (Lambert & Enz, 2012).

### Conceptual Framework



**Figure 1: Conceptual Framework showing the relationship between E-Procurement Systems and Supply Chain Effectiveness of Manufacturing Firms in Rivers State**

Source: Ayodele Adebisi (2017) and Researcher (2024)

#### Aims & Objectives

The main and broad aim of this study is to determine how E-Procurement Systems can enhance supply chain effectiveness in Nigeria’s Manufacturing sectors with emphasis on manufacturing firms in Rivers State. The specific objectives are to:

1. To determine the relationship between e-sourcing platforms and supply chain effectiveness in manufacturing firms in Rivers State
2. To determine the relationship between e-tendering systems and supply chain effectiveness in manufacturing firms in Rivers State
3. To determine the relationship between suppliers’ networks and supply chain effectiveness in manufacturing firms in Rivers State

#### Research Questions

The following research questions were raised to guide the study.

1. What is the relationship between e-sourcing platforms and supply chain effectiveness in manufacturing firms in Rivers State?
2. What is the relationship between e-tendering systems and supply chain effectiveness in manufacturing firms in Rivers State?
3. What is the relationship between suppliers’ networks and supply chain effectiveness in manufacturing firms in Rivers State?

#### Hypothesis

The following null hypotheses were formulated and tested at a significant level of 0.01.

**HO<sub>1</sub>:** There is no significance relationship between e-sourcing platforms and supply chain effectiveness in manufacturing firms in Rivers State.

**HO<sub>2</sub>:** There is no significance relationship between e-tendering systems and supply chain effectiveness in manufacturing firms in Rivers State.

**HO<sub>3</sub>:** There is no significance relationship between suppliers networks and supply chain effectiveness in manufacturing firms in Rivers State.

## REVIEW OF RELATED LITERATURE

The study reviews adequate literature related to the study under investigation under the headings of conceptual review, theoretical review and empirical review.

### Conceptual Review

#### Concept of E-Procurement System

E-procurement systems refer to the use of electronic methods, typically internet-based platforms, for conducting procurement processes and transactions (Croom & Brandon-Jones, 2007). These systems encompass a range of activities, including the electronic purchase of goods and services, supplier selection, order management, and payment processes (Davila, Gupta, & Palmer, 2003). By automating these activities, e-procurement systems aim to streamline procurement workflows, reduce transaction costs, and enhance overall efficiency (Neef, 2001).

One of the primary benefits of e-procurement systems is the significant reduction in procurement cycle times. Traditional procurement processes often involve lengthy paperwork and manual approvals, which can delay the acquisition of goods and services (Vaidya, Sajeev, & Callender, 2006). In contrast, e-procurement systems facilitate faster processing by enabling electronic submission and approval of purchase orders, thus expediting the entire procurement cycle (Gunasekaran, McGaughey, & Ngai, 2009). This speed and efficiency are critical for manufacturing firms that require timely inputs to maintain continuous production (Koch, 2005).

Another key advantage of e-procurement systems is cost savings. By reducing the need for physical documents and manual processing, e-procurement systems lower administrative and operational costs (Carayannis & Popescu, 2005). Additionally, these systems often provide tools for competitive bidding and electronic auctions, which can help organizations secure better prices from suppliers (Davila *et al.*, 2003). The transparency and competition facilitated by e-procurement systems can lead to more favorable procurement terms and lower costs overall (Mose, Njihia, & Magutu, 2013).

E-procurement systems also enhance transparency and accountability in procurement processes. By maintaining electronic records of all transactions, these systems ensure that procurement activities are traceable and auditable (Vaidya *et al.*, 2006). This transparency helps prevent procurement fraud and ensures compliance with regulatory and

organizational policies (Smart, 2010). For instance, audit trails in e-procurement systems make it easier to detect irregularities and enforce procurement standards (Wyld, 2011). This level of transparency is particularly important in regions where procurement practices are subject to scrutiny and regulatory oversight (Carayannis & Popescu, 2005).

Furthermore, e-procurement systems improve supplier management and collaboration. These systems provide a centralized platform where suppliers can be evaluated, selected, and managed more effectively (Subramaniam & Shaw, 2002). Features such as supplier portals and performance analytics enable firms to monitor supplier performance, manage relationships, and foster collaboration (Saeed, Malhotra, & Grover, 2005). Enhanced supplier management through e-procurement systems leads to better alignment of supplier capabilities with organizational needs, ultimately improving supply chain performance (Barua, Konana, Whinston, & Yin, 2004).

Nevertheless, e-procurement systems play a crucial role in modernizing procurement processes by enhancing speed, reducing costs, increasing transparency, and improving supplier management (Croom & Brandon-Jones, 2007). These systems enable organizations to conduct procurement activities more efficiently and effectively, contributing to overall supply chain effectiveness (Davila *et al.*, 2003). As manufacturing firms in regions like Rivers State continue to adopt these technologies, they can expect to see significant improvements in their procurement operations and supply chain performance (Gunasekaran *et al.*, 2009).

### Dimensions of E-Procurement System

#### E-Sourcing Platforms

E-sourcing platforms are digital tools that facilitate the strategic sourcing process by enabling organizations to identify, evaluate, and select suppliers through electronic means (Bartezzaghi & Ronchi, 2003). These platforms provide a centralized online environment where buyers can post their sourcing requirements and suppliers can submit their proposals (Croom & Brandon-Jones, 2007). By leveraging e-sourcing platforms, organizations can streamline the supplier selection process, improve competitive bidding, and enhance transparency (Handfield & Nichols, 2002). For instance, e-sourcing platforms allow firms to access a broader range of suppliers, conduct comprehensive market analyses, and make more informed sourcing decisions (Avery, 2002).

One of the key benefits of e-sourcing platforms is the ability to conduct electronic Request for Proposals (e-RFPs) and Request for Quotations

(e-RFQs), which significantly reduce the time and costs associated with traditional paper-based methods (Neef, 2001). This digital approach enhances efficiency by automating many of the repetitive tasks involved in the sourcing process and by providing real-time communication between buyers and suppliers (Min & Galle, 2003). Furthermore, e-sourcing platforms often include analytical tools that help organizations evaluate supplier responses more effectively, ensuring that the best suppliers are selected based on predefined criteria (Presutti, 2003).

### **E-Tendering Systems**

E-tendering systems are another critical dimension of e-procurement that focus on the electronic submission and evaluation of tenders (Bof & Previtali, 2007). These systems enable organizations to manage the entire tendering process online, from issuing tender documents to receiving and evaluating bids (Vaidya, Sajeev, & Callender, 2006). By utilizing e-tendering systems, organizations can enhance the transparency and efficiency of their tendering processes, ensuring that all bids are submitted and evaluated fairly and consistently (Eadie, Perera, & Heaney, 2010). This transparency is essential for maintaining integrity and trust in the procurement process, especially in public sector and regulated industries (McCue & Roman, 2012).

E-tendering systems also facilitate better documentation and record-keeping, as all tender-related information is stored electronically and can be easily accessed and audited (Smith & Smyth, 2010). This electronic record-keeping not only improves compliance with regulatory requirements but also enhances the ability to review and analyze past tenders to identify areas for improvement (Eadie *et al.*, 2010). Additionally, e-tendering systems often incorporate features such as automated notifications and reminders, which help ensure that all stakeholders are kept informed and that deadlines are met (Eadie *et al.*, 2010).

### **Suppliers Network**

The supplier's network, as a dimension of e-procurement systems, refers to the interconnected web of suppliers that an organization can access and manage through digital platforms (Croom & Brandon-Jones, 2007). This network facilitates better communication, collaboration, and coordination between buyers and suppliers (Harland, Zheng, Johnsen, & Lamming, 2004). By leveraging a robust suppliers network, organizations can improve their supply chain resilience and responsiveness, as they have access to a wider pool of suppliers and can quickly identify alternative sources of supply when needed (Carr & Pearson, 1999).

E-procurement systems that support a comprehensive suppliers network enable organizations to monitor supplier performance continuously and maintain up-to-date information on supplier capabilities, certifications, and compliance (Handfield & Nichols, 2002). This ongoing monitoring helps ensure that suppliers meet the required standards and that any issues are addressed promptly (Harland *et al.*, 2004). Moreover, a well-managed suppliers network can foster long-term strategic partnerships, driving innovation and continuous improvement in the supply chain (Cousins, Lawson, & Squire, 2006).

### **Concept of Supply Chain Effectiveness**

Supply chain effectiveness is a comprehensive measure of how well a supply chain achieves its goals, including customer satisfaction, cost efficiency, and timely delivery of products (Chopra & Meindl, 2016). It encompasses various aspects such as the quality of goods and services, the speed of delivery, flexibility in responding to changes, and overall operational efficiency (Mentzer, DeWitt, Keebler, Min, Nix, Smith, & Zacharia, 2001). Effective supply chain management ensures that all these elements work seamlessly together to meet the end customer's requirements and achieve organizational objectives (Christopher, 2016).

A key component of supply chain effectiveness is the integration and coordination of different supply chain activities and processes. This integration helps in reducing redundancies, optimizing resource use, and improving information flow across the supply chain (Lambert, Cooper, & Pagh, 1998). Effective coordination among suppliers, manufacturers, and distributors is essential for maintaining a smooth and efficient supply chain, which directly impacts the firm's ability to deliver products on time and at the desired quality (Stevens, 1989). The synchronization of these activities helps in minimizing delays and reducing costs associated with inefficiencies (Simchi-Levi, Kaminsky, & Simchi-Levi, 2007).

Another crucial element of supply chain effectiveness is the ability to respond swiftly and effectively to market changes and customer demands. Flexibility and agility in the supply chain enable firms to adapt to fluctuations in demand, supply disruptions, and other uncertainties (Lee, 2004). This responsiveness is achieved through strategic planning, advanced forecasting techniques, and real-time data analytics, which help in making informed decisions and anticipating potential disruptions (Fawcett, Ellram, & Ogden, 2007). Companies that can quickly adjust their supply chain strategies to cope with these changes are better positioned to

maintain their competitive edge (Christopher & Holweg, 2011).

The role of technology in enhancing supply chain effectiveness cannot be overstated. Technologies such as Enterprise Resource Planning (ERP) systems, Radio Frequency Identification (RFID), and advanced analytics tools play a significant role in improving the efficiency and accuracy of supply chain operations (Gunasekaran & Ngai, 2004). These technologies facilitate better data management, real-time tracking, and seamless communication across the supply chain, thus enabling firms to optimize their operations and improve overall performance (Chopra & Meindl, 2016). The adoption of such technologies is crucial for firms looking to enhance their supply chain effectiveness in today's highly competitive market (Lee & Billington, 1992).

Moreover, effective supply chain management requires a strong focus on customer satisfaction. Ensuring that the end customers receive the right products at the right time and place is paramount (Harrison & Van Hoek, 2008). Customer-centric supply chain strategies involve understanding customer needs, maintaining high service levels, and ensuring product quality and reliability (Bowersox, Closs, & Cooper, 2007). By aligning supply chain operations with customer expectations, firms can achieve higher customer satisfaction, which in turn leads to increased customer loyalty and competitive advantage (Mentzer, Flint, & Hult, 2001).

However, supply chain effectiveness is a multifaceted concept that involves the integration and coordination of supply chain activities, responsiveness to market changes, technological adoption, and a strong focus on customer satisfaction (Chopra & Meindl, 2016). By addressing these aspects, firms can significantly enhance their supply chain performance and achieve their strategic objectives (Christopher, 2016). The continuous evaluation and improvement of supply chain processes are essential for maintaining high levels of effectiveness in the dynamic and competitive business environment (Lambert & Cooper, 2000).

## Measures of Supply Chain Effectiveness

### Cost Reduction

Cost reduction is a fundamental measure of supply chain effectiveness, emphasizing the importance of minimizing expenses without compromising quality or service levels (Chopra & Meindl, 2016). Effective cost management in supply chains involves various strategies, such as optimizing inventory levels, reducing transportation costs, and leveraging economies of scale (Christopher, 2016). For instance, Just-In-Time (JIT) inventory systems

help reduce holding costs by ensuring that materials and products are received only as needed for production (Lee, 2004). Additionally, strategic sourcing and negotiating favorable terms with suppliers can lead to significant cost savings (Simchi-Levi, Kaminsky, & Simchi-Levi, 2007). Therefore, achieving cost reduction not only improves the financial health of a company but also enhances its competitiveness in the market (Mentzer *et al.*, 2001).

### Process Efficiency

Process efficiency refers to the ability of a supply chain to maximize outputs while minimizing inputs, thereby ensuring that operations are performed in the most effective manner (Harrison & Van Hoek, 2008). Efficient processes streamline workflows, reduce waste, and enhance productivity across the supply chain (Bowersox, Closs, & Cooper, 2007). Techniques such as Lean Manufacturing and Six Sigma are often employed to improve process efficiency by identifying and eliminating inefficiencies (Womack & Jones, 2003). For example, Lean Manufacturing focuses on reducing waste and improving flow in production processes, while Six Sigma aims to reduce variability and improve quality (Snee, 2010). Efficient processes are essential for meeting customer demands promptly and cost-effectively, thereby contributing significantly to supply chain effectiveness (Gunasekaran & Ngai, 2004).

### Supplier Performance

Supplier performance is a critical measure of supply chain effectiveness, as it directly impacts the quality, cost, and timeliness of products and services delivered to the end customers (Krause, Pagell, & Curkovic, 2001). Evaluating supplier performance involves assessing factors such as delivery reliability, quality consistency, and flexibility in responding to changes (Handfield & Nichols, 2002). Strong supplier relationships and performance are achieved through continuous monitoring, clear communication, and collaboration (Lambert, Cooper, & Pagh, 1998). Supplier performance can be enhanced by implementing supplier development programs, which aim to improve suppliers' capabilities and align them with the company's strategic goals (Krause, Handfield, & Scannell, 1998). Effective supplier management ensures that the supply chain remains resilient and responsive, thereby enhancing overall effectiveness (Chopra & Meindl, 2016).

## Theoretical Review

### Transaction Cost Theory (TCT)

Transaction cost theory was developed by economist Ronald Coase, who laid the groundwork with his seminal paper "The Nature of the Firm" in 1937. Coase's work was groundbreaking as it introduced the concept that firms exist to minimize

the costs of exchanging goods and services in the market. He argued that there are costs associated with using the market, such as finding the right prices, negotiating contracts, and ensuring compliance with the terms of the exchange (Coase, 1937). The theory was further developed and popularized by Oliver E. Williamson, who extended Coase's ideas in the 1970s and 1980s. Williamson's contributions included the notion that firms and markets are alternative instruments for completing a set of transactions and that firms emerge when they can perform these transactions more efficiently than the market. He introduced the concepts of bounded rationality and opportunism, emphasizing that transaction costs arise from human factors like limited information and the potential for parties to act in their self-interest (Williamson, 1979).

### Relevance of the Theory

E-procurement systems reduce search and information costs by providing centralized platforms where suppliers and buyers can interact and exchange information seamlessly (Croom & Brandon-Jones, 2007). These systems facilitate better market intelligence and quicker access to supplier data, which leads to more informed decision-making and less time spent on finding and evaluating potential suppliers (Cheng, 2011). By lowering these costs, firms can allocate resources more efficiently and improve overall supply chain performance. Moreover, e-procurement systems significantly reduce bargaining costs by automating negotiation processes and standardizing contracts (Davila, Gupta, & Palmer, 2003). Automated bidding and tendering processes eliminate the need for prolonged negotiations, leading to faster transaction cycles and reduced labor costs (Subramaniam & Shaw, 2002). This increased efficiency in the procurement process helps firms respond more swiftly to market demands and changes, thereby enhancing supply chain agility.

Policing and enforcement costs, which involve ensuring that all parties adhere to agreed terms, are also minimized through e-procurement systems. These systems enhance transparency and accountability by maintaining detailed records of all transactions, making it easier to monitor compliance and resolve disputes (Carter, Kaufmann, & Michel, 2007). The use of electronic records reduces the likelihood of fraud and errors, contributing to more reliable and effective supply chain operations.

Furthermore, TCT highlights the importance of reducing uncertainty and opportunism in transactions. E-procurement systems provide real-time data and analytics, which help firms to anticipate and mitigate risks associated with supplier performance and market volatility (Puschmann & Alt, 2005). By offering better visibility into the supply

chain, e-procurement systems enable firms to make proactive adjustments, thus maintaining supply chain effectiveness even in uncertain environments. In addition, the integration of e-procurement systems with other enterprise systems, such as ERP and SCM systems, facilitates seamless information flow across the supply chain (Presutti, 2003). This integration reduces coordination costs and enhances collaboration among supply chain partners, leading to improved supply chain synchronization and performance (Chopra & Meindl, 2013). Thus, TCT supports the argument that e-procurement systems contribute to the overall effectiveness and efficiency of supply chains.

Nevertheless, Transaction Cost Theory provides a robust framework for understanding the benefits of e-procurement systems in reducing various transaction costs and enhancing supply chain effectiveness. By examining the impact of e-procurement through the lens of TCT, researchers can gain valuable insights into how digital procurement tools drive operational efficiencies and improve supply chain performance (Williamson, 1985).

### Resource-Based View Theory

The Resource-Based View (RBV) theory was developed by several scholars, but the foundational work is commonly attributed to Jay Barney. Barney's seminal 1991 paper, "Firm Resources and Sustained Competitive Advantage," laid the groundwork for the RBV theory by emphasizing the role of firm-specific resources in achieving and sustaining competitive advantage (Barney, 1991). The origins of the RBV can be traced back to the work of Edith Penrose in her 1959 book, "The Theory of the Growth of the Firm," where she argued that a firm's growth is influenced by the unique resources it possesses (Penrose, 1959). Penrose's insights provided a preliminary understanding that resources and capabilities are central to a firm's strategic development and competitive positioning.

Building on Penrose's ideas, Birger Wernerfelt's 1984 article, "A Resource-Based View of the Firm," further articulated the importance of resources in strategic management. Wernerfelt suggested that firms could be analyzed in terms of their resource portfolios, which could provide a basis for strategy formulation (Wernerfelt, 1984). His work paved the way for a more structured approach to studying firm resources. Jay Barney's contribution in 1991 synthesized these earlier works and introduced a framework for understanding how resources contribute to sustained competitive advantage. Barney identified four criteria for resources to be valuable: they must be valuable, rare, inimitable, and non-substitutable (Barney, 1991). This VRIN



framework became a cornerstone of RBV theory and has been extensively applied and expanded in subsequent research.

### Relevance of the Theory

The Resource-Based View (RBV) theory is highly relevant to the study of e-procurement systems and their impact on supply chain effectiveness. RBV, which posits that the resources and capabilities of a firm are critical to its competitive advantage, provides a valuable lens through which to examine how e-procurement systems can enhance supply chain performance. By leveraging unique resources and capabilities, firms can achieve significant improvements in efficiency, cost savings, and strategic value through e-procurement (Barney, 1991).

One of the primary ways RBV is applied in e-procurement is through the identification and utilization of strategic resources that are rare, valuable, inimitable, and non-substitutable (RVIN). E-procurement systems, as a technological resource, can streamline procurement processes, reduce transaction costs, and enhance data accuracy and transparency. These improvements align with the core principles of RBV by providing firms with a sustainable competitive advantage derived from their technological investments (Wernerfelt, 1984). For instance, firms that effectively integrate e-procurement systems into their operations can better manage supplier relationships, optimize inventory levels, and respond more quickly to market changes, thereby improving overall supply chain effectiveness (Rai *et al.*, 2006).

Furthermore, e-procurement systems enable firms to develop and exploit capabilities that enhance their operational efficiency. These capabilities include better data analytics, improved supplier collaboration, and more effective contract management. According to RBV, these enhanced capabilities are critical for achieving superior performance. Firms that develop robust e-procurement capabilities can differentiate themselves in the marketplace, achieve higher levels of service quality, and reduce procurement cycle times (Amit & Schoemaker, 1993). For example, the ability to analyze procurement data in real-time allows firms to make more informed decisions, leading to cost savings and improved supplier performance (Devaraj *et al.*, 2007). In addition, the implementation of e-procurement systems can lead to the development of new dynamic capabilities, which are crucial for adapting to rapidly changing market conditions. These dynamic capabilities, such as the ability to reconfigure procurement processes and integrate new technologies, are essential for maintaining a competitive edge in the fast-paced

business environment. The RBV framework suggests that firms that can continuously develop and refine their e-procurement systems are better positioned to respond to external pressures and opportunities, thereby enhancing supply chain resilience and effectiveness (Teece *et al.*, 1997).

Moreover, the alignment of e-procurement systems with a firm's strategic objectives is a critical aspect of the RBV. Firms that align their e-procurement initiatives with their overall business strategy can achieve greater coherence and integration across their supply chain activities. This strategic alignment ensures that the resources invested in e-procurement are effectively utilized to support the firm's long-term goals, leading to sustained competitive advantage and improved supply chain performance (Grant, 1991). For instance, a firm that strategically aligns its e-procurement system with its sustainability goals can enhance its reputation, reduce environmental impact, and achieve greater operational efficiency (Walker *et al.*, 2008).

### Empirical Review

Agboh (2015) carried out a study on the impact of e-procurement on supply chain performance in the Nigerian construction industry. The aim of the study was to assess the influence of e-procurement on supply chain performance in the construction sector. Survey method with questionnaires distributed to construction firms, followed by statistical analysis of the data collected. E-procurement significantly improves supply chain performance by reducing costs, increasing transparency, and enhancing efficiency. Adoption of e-procurement systems can lead to substantial improvements in supply chain operations. Construction firms should invest in e-procurement technologies and train their staff to maximize the benefits.

Onyesom and Onyibor (2018) e-procurement adoption in Nigerian public sector: challenges and benefits. The aim of the study was to identify the challenges faced by the public sector in adopting e-procurement and the benefits derived from its use. Case study approach with interviews and document analysis from public sector organizations. Major challenges include resistance to change, lack of infrastructure, and insufficient training. Benefits include increased transparency, reduced corruption, and cost savings. While e-procurement offers significant benefits, overcoming the challenges requires targeted efforts. The government should provide adequate infrastructure, conduct regular training, and foster a culture of acceptance towards new technologies.



Adebayo and Evans (2019) examined e-procurement and supply chain management in Nigerian SMEs. The aim of the study was to evaluate the impact of e-procurement on supply chain management in small and medium enterprises (SMEs). Mixed methods approach, including surveys and in-depth interviews with SME owners and managers. E-procurement enhances supply chain efficiency, reduces operational costs, and improves supplier relationships. SMEs can greatly benefit from adopting e-procurement systems, though initial costs and training are significant barriers. SMEs should seek partnerships for shared e-procurement platforms and leverage government support for technology adoption.

Study by Okoye and Obeta (2020) examined effects of e-procurement on supply chain performance in the oil and gas industry in Nigeria. The study aim was to investigate the effects of e-procurement systems on the supply chain performance of oil and gas companies. Quantitative approach using questionnaires distributed to procurement officers in oil and gas firms. E-procurement systems lead to improved supply chain performance, including faster procurement cycles and reduced costs. The oil and gas industry stands to gain significantly from the adoption of e-procurement systems. Companies should continue to invest in e-procurement technologies and provide comprehensive training for employees.

**METHODOLOGY**

Correlational survey research design was adopted for this study as this study seek to determine the relationship between the two variables. The population of this study is thirty-two (32) manufacturing companies in Rivers State which are registered with the Rivers State branch of Manufacturers Association of Nigeria (MAN). The sample size for this study is the thirty-two (32) manufacturing companies earlier indicated as the population. The study adopted the census techniques. One of the reasons for applying census method is the limited and manageable size of the population. There are only 32 registered firms with MAN in the State. With regard to the respondents of the study given the

strategic nature of the study, three key managers (production manager, marketing manager and logistics manager) were chosen as respondents from each using simple random sampling of the thirty-two firms constitute the study subject. This gave us a total of ninety-two (92) for the study. Structured questionnaire instrument title E-procurement systems and Supply chain effectiveness in Selected Manufacturing Firms in Port Harcourt. questionnaire was developed on five-point likert scale.

E-procurement systems and supply chain effectiveness in selected manufacturing firm’s questionnaire was independently subjected to content and construct validity by three Lecturers in the Department of Management, Faculty of Management Sciences, Ignatius Ajuru University of Education, Port Harcourt. The corrections and suggestions of the validators were affected on the finale copy of the instrument. The reliability of empirical measurement is indicated by the internal consistency, one of the most commonly used indicators of internal consistency is Cronbach’s alpha coefficient. Questionnaire item statements with Cronbach’s alpha reliability coefficient below the 0.70 threshold were eliminated. the test-re-test method was used. 20 copies of the questionnaire instrument were issue and some later same copies were issue through electronic media. the results were used in computation using Cronbach’s alpha test of reliability.

**Table 1: Reliability Statistics**

Cronbach's Alpha	N of Items
.810	6

**Source:** Researcher Computation via SPSS Version 25

The result of the Cronbach's Alpha reliability test indicates .810 which is above .70 which implies that the items are reliable. Pearson product moment correlation was used to test the hypotheses using SPSS (statistical package social sciences).

**Data Analysis**

**HO<sub>1</sub>:** There is no significant relationship between E-Sourcing Platforms and Supply Chain Effectiveness in selected manufacturing firms in Port Harcourt.

**Table 2: Correlation On E-Sourcing Platforms and Supply Chain Effectiveness**

		E-Sourcing Platform	Supply Chain Effectiveness
E-Sourcing Platform	Pearson Correlation	1	.687**
	Sig. (2-tailed)		.000
	N	92	92
Supply Chain Effectiveness	Pearson Correlation	.687**	1
	Sig. (2-tailed)	.000	
	N	92	92

\*\* . Correlation is significant at the 0.01 level (2-tailed).

Table 2: correlation on e-sourcing platforms and supply chain effectiveness revealed that there is a significant relationship between e-sourcing platforms and supply chain effectiveness in selected manufacturing firms in Port Harcourt where (P. 687: sig. .000) thus leading to acceptance of alternate hypothesis: There is a significant relationship

between e-sourcing platforms and supply chain effectiveness in selected manufacturing firms in Port Harcourt.

**HO<sub>2</sub>:** There is no significant relationship between E-Tendering Systems and Supply Chain Effectiveness in selected manufacturing firms in Port Harcourt.

**Table 3: Correlation on E-Tendering Systems and Supply Chain Effectiveness**

		<b>E-Tendering Systems</b>	<b>Supply Chain Effectiveness</b>
E-Tendering Systems	Pearson Correlation	1	.710**
	Sig. (2-tailed)		.000
	N	92	92
Supply Chain Effectiveness	Pearson Correlation	.710**	1
	Sig. (2-tailed)	.000	
	N	92	92

\*\* . Correlation is significant at the 0.01 level (2-tailed).

Table 3: correlation on e-tendering systems and supply chain effectiveness revealed that there is a significant relationship between e-tendering systems and supply chain effectiveness in selected manufacturing firms in Port Harcourt where (P. 710: sig. .000) thus leading to acceptance of alternate hypothesis: There is a significant relationship

between e-tendering systems and supply chain effectiveness in selected manufacturing firms in Port Harcourt.

**HO<sub>3</sub>:** There is no significant relationship between Suppliers Networks and Supply Chain Effectiveness in selected manufacturing firms in Port Harcourt.

**Table 4: Correlation on Suppliers Networks and Supply Chain Effectiveness**

		<b>Suppliers Netwkorks</b>	<b>Supply Chain Effectiveness</b>
Suppliers Networks	Pearson Correlation	1	.767**
	Sig. (2-tailed)		.000
	N	92	92
Supply Chain Effectiveness	Pearson Correlation	.767**	1
	Sig. (2-tailed)	.000	
	N	92	92

\*\* . Correlation is significant at the 0.01 level (2-tailed).

Table 4: correlation on suppliers networks and supply chain effectiveness revealed that there is a significant relationship between suppliers networks and supply chain effectiveness in selected manufacturing firms in Port Harcourt where (P. .767: sig. .000) thus leading to acceptance of alternate hypothesis: There is a significant relationship between suppliers networks and supply chain effectiveness in selected manufacturing firms in Port Harcourt.

systems and supply chain effectiveness revealed that there is a significant relationship between E-tendering systems and supply chain effectiveness in selected manufacturing firms in Port Harcourt where (P. 710: sig. .000) thus leading to acceptance of alternate hypothesis: There is a significant relationship between E-tendering systems and supply chain effectiveness in selected manufacturing firms in Port Harcourt. Table 4: correlation on Suppliers network and supply chain effectiveness revealed that there is a significant relationship between Suppliers network and supply chain effectiveness in selected manufacturing firms in Port Harcourt where (P. .767: sig. .000) thus leading to acceptance of alternate hypothesis: There is a significant relationship between Suppliers network and supply chain effectiveness in selected manufacturing firms in Port Harcourt.

**DISCUSSION OF FINDINGS**

Table 2: correlation on E-sourcing platforms and supply chain effectiveness revealed that there is a significant relationship between E-sourcing platforms and supply chain effectiveness in selected manufacturing firms in Port Harcourt where (P. 687: sig. .000) thus leading to acceptance of alternate hypothesis: There is a significant relationship between E-sourcing platforms and supply chain effectiveness in selected manufacturing firms in Port Harcourt. Table 3: correlation on E-tendering

**CONCLUSION**

The study on E-procurement systems and Supply chain effectiveness in selected manufacturing

firms in Port Harcourt has provided valuable insights into the importance of efficient workforce planning and utilization in the manufacturing sector. The application of Supply chain effectiveness models has proven to be a useful tool for predicting workforce transitions and optimizing manpower requirements within these firms. By analyzing historical data on employee movements and job transitions, managers can make informed decisions on recruitment, training, and retention strategies to ensure a skilled and motivated workforce.

## RECOMMENDATIONS

Based on the findings of this study, several recommendations can be made to enhance E-procurement systems and utilization in manufacturing firms in Port Harcourt:

- i. Implement regular workforce planning exercises to forecast future manpower needs based on business growth projections and industry trends.
- ii. Utilize Supply chain effectiveness models to analyze historical data on employee movements and identify patterns that can help predict future workforce transitions.
- iii. Invest in training and development programs to upskill existing employees and reduce reliance on external recruitment.
- iv. Monitor key performance indicators related to workforce productivity, turnover rates, and skill gaps to identify areas for improvement.

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