Digital Procurement Platforms and Marketing Efficiency of Software Firms: Evidence from Mobile Procurement and E-Sourcing Adoption in Nigeria

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ABSTRACT

The rapid digital transformation of organizational processes has significantly reshaped procurement practices and their strategic role in enhancing firm performance. Digital procurement platforms, particularly mobile procurement, and e-sourcing technologies, enable organizations to streamline sourcing activities, improve supplier coordination, and enhance operational responsiveness. Despite the growing adoption of these technologies, limited empirical attention has been given to their implications for marketing efficiency, especially within software firms operating in emerging economies. This study examines the relationship between digital procurement platforms and marketing efficiency among software firms in Port Harcourt, Rivers State, Nigeria. Specifically, the study investigates the influence of mobile procurement platforms and e-sourcing platforms on customer acquisition rate and customer retention rate. A cross-sectional survey design was employed, and primary data were collected from professionals in software firms using structured questionnaires. Out of 30 questionnaires distributed, 22 valid responses were obtained and analyzed using Spearman's Rank Order Correlation. The results reveal that mobile procurement platforms have a strong positive relationship with customer acquisition rate ($\rho = 0.723$) and customer retention rate ($\rho = 0.788$). In addition, e-sourcing platforms exhibit a weak positive relationship with customer acquisition rate ($\rho = 0.378$) and a moderate positive relationship with customer retention rate ($\rho = 0.573$). The study contributes to the digital procurement and marketing performance literature by demonstrating that procurement technologies can serve as strategic enablers of marketing efficiency in technology-driven firms. The findings highlight the need for software firms to integrate digital procurement capabilities into their operational and marketing strategies to enhance competitiveness and customer relationship outcomes.

Keywords*: Digital procurement platforms, mobile procurement platforms, e-sourcing platforms, marketing efficiency, customer acquisition rate, customer retention rate; software firms.*

INTRODUCTION

The global software industry has become a critical driver of economic development, innovation, and digital transformation across sectors. Software firms increasingly rely on advanced technologies to automate operations, enhance productivity, and create competitive advantages in rapidly evolving markets. The expansion of cloud computing, artificial intelligence (AI), and digital platforms has significantly transformed how organizations develop, distribute, and manage software solutions (Cusumano et al., 2019; Uford & Akpan, 2024). As a result, software firms are increasingly integrating digital technologies into their operational and strategic processes to improve efficiency and market responsiveness. Procurement processes have experienced significant transformation due the adoption of

digital technologies. Traditionally, procurement activities relied heavily on manual procedures, fragmented communication channels, and paper-based documentation, which often resulted in operational inefficiencies, procurement delays, and limited transparency. However, the emergence of digital procurement platforms has revolutionized procurement operations by introducing automation, real-time analytics, and integrated supplier management systems (Handfield et al., 2020). Digital procurement platforms leverage cloud computing, artificial intelligence, and big data analytics to streamline sourcing activities, enhance supplier collaboration, and improve procurement decision-making (Brinch, 2018).

Within organizations, digital procurement platforms are increasingly integrated with enterprise resource planning systems and other digital infrastructure to enhance operational efficiency and strategic coordination (Uford, Charles & Etuk, 2022). These platforms enable organizations to automate supplier selection, monitor procurement activities, analyze spending patterns, and ensure compliance with procurement policies (Monczka et al., 2020). Furthermore, technologies such as blockchain and advanced analytics have strengthened procurement transparency, improved supplier trust, and enhanced demand forecasting capabilities (Kshetri, 2018). Beyond operational benefits, digital procurement platforms also have significant implications for marketing performance. In the digital economy, organizations must ensure efficient coordination between procurement and marketing functions to support customer acquisition, service delivery, and product availability. Efficient procurement systems ensure that marketing resources, technological infrastructure, and service components are available when required, thereby enabling firms to implement marketing strategies effectively. Consequently, procurement efficiency can influence critical marketing outcomes such as customer acquisition and customer retention (Kotler & Keller, 2021).

Two important dimensions of digital procurement platforms are mobile procurement platforms and e-sourcing platforms. Mobile procurement platforms enable procurement professionals to manage procurement processes through mobile devices, thereby improving accessibility, flexibility, and decision-making speed (Monczka et al., 2020). These platforms allow managers to approve purchases, track supplier performance, and monitor procurement activities remotely, which enhances organizational responsiveness.

Similarly, e-sourcing platforms facilitate electronic supplier selection, bidding processes, and contract negotiations. These platforms enhance procurement transparency and enable organizations to identify optimal suppliers through competitive bidding and data-driven analysis (Schoenherr & Speier-Pero, 2015). By improving procurement efficiency and supplier relationships, e-sourcing platforms enable firms to allocate resources more effectively, which ultimately enhances marketing performance.

Marketing efficiency refers to the ability of organizations to maximize marketing outcomes while minimizing resource wastage. It reflects how effectively marketing investments translate into measurable outcomes such as customer acquisition, market expansion, and customer retention (Rust et al., 2004). In highly competitive industries such as the software sector, firms must ensure that marketing resources are utilized efficiently to attract new customers and maintain long-term customer relationships (Asuquo et al, 2024). Customer acquisition rate and customer retention rate are widely recognized indicators of marketing efficiency. Customer acquisition rate measures the effectiveness of a firm's marketing strategies in attracting new customers, while customer retention rate reflects the firm's ability to maintain existing customer relationships over time (Chaffey & Ellis-Chadwick, 2019).

Improvements in procurement efficiency can indirectly support these marketing outcomes by ensuring the availability of technological resources, marketing tools, and service delivery infrastructure required for effective marketing operations.

Although several studies have examined the operational benefits of digital procurement systems, limited research has explored their influence on marketing efficiency within software firms. Studies such as Adebayo and Ogunleye (2022) and Kareem and Musa (2021) primarily focus on procurement efficiency and supplier relationships, while others examine customer relationship management within broader technology sectors (Mensah & Boateng, 2021). However, few studies have specifically investigated how digital procurement platforms influence marketing efficiency indicators such as customer acquisition and customer retention within software firms.

This gap is particularly relevant in emerging economies such as Nigeria, where software firms operate in highly competitive environments characterized by rapid technological change and resource constraints. Understanding how digital procurement platforms influence marketing performance can provide valuable insights for improving operational coordination and market competitiveness. Therefore, this study examines the relationship between digital procurement platforms and marketing efficiency of software firms in Port Harcourt, Rivers State, Nigeria with particular focus on the roles of mobile procurement platforms and e-sourcing platforms.

Objectives of the Study
The main objective of this study is to examine the relationship between digital procurement platforms and marketing efficiency of software firms in Port Harcourt, Rivers State, Nigeria.

The specific objectives are to:

1. Examine the relationship between mobile procurement platforms and customer acquisition rate of software firms.
2. Determine the relationship between mobile procurement platforms and customer retention rate of software firms.
3. Assess the relationship between e-sourcing platforms and customer acquisition rate of software firms.
4. Examine the relationship between e-sourcing platforms and customer retention rate of software firms.

Research Hypotheses
H_{01}: Mobile procurement platforms have no significant relationship with customer acquisition rate of software firms.

H_{02}: Mobile procurement platforms have no significant relationship with customer retention rate of software firms.

H_{03}: E-sourcing platforms have no significant relationship with customer acquisition rate of software firms.

H_{04}: E-sourcing platforms have no significant relationship with customer retention rate of software firms.

LITERATURE REVIEW
Theoretical Underpinning
This study is anchored on the Resource-Based View (RBV) and the Technology Acceptance Model (TAM). The RBV, proposed by Barney (1991), asserts that firms gain sustainable competitive advantage by strategically deploying valuable, rare, inimitable, and non-substitutable resources. In the context of software firms, digital procurement platforms comprising mobile platforms and e-sourcing systems serve as strategic resources that enhance operational efficiency, customer acquisition, and retention, thereby improving overall marketing efficiency (Mensah & Boateng, 2021). By leveraging these platforms, firms can streamline procurement processes, reduce transaction costs, and enhance customer engagement, aligning with RBV's emphasis on leveraging internal resources for performance gains.

Complementarily, the Technology Acceptance Model (TAM) posits that perceived usefulness and ease of use determine the adoption of technology, influencing behavioral intention and actual usage (Davis, 1989). Mobile and e-sourcing platforms, when perceived as user-friendly and beneficial, are more likely to be adopted by software firms, directly impacting customer acquisition and retention outcomes (Adebayo & Ogunleye, 2022). The integration of RBV and TAM provides a robust framework for understanding how digital procurement platforms, as strategic and technological resources, contribute to marketing efficiency by enhancing both operational capabilities and user engagement.

Collectively, these theories justify the investigation of digital procurement platforms as critical drivers of marketing efficiency in software firms, particularly in emerging market contexts like Port Harcourt, Nigeria, where empirical evidence remains limited (Verhoef, Kannan, & Inman, 2015; Lamberton & Stephen, 2016).

Conceptual Review
Conceptual Model Diagram
Digital Procurement Platforms

— Mobile Procurement Platforms

— E-Sourcing Platforms

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Marketing Efficiency
— Customer Acquisition Rate
— Customer Retention Rate
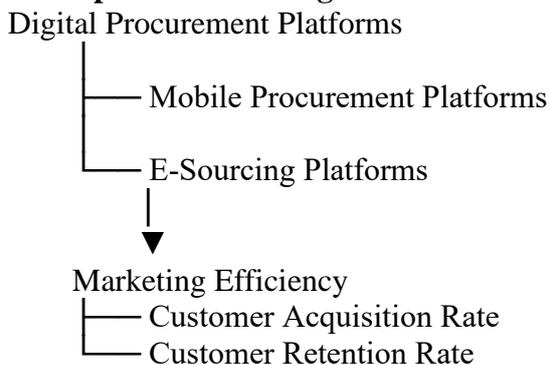
Source: Adapted from Smith (2009); Bahri et al. (2013); Cusumano et al. (2019); Kotler and Keller (2021); Li and Kannan (2014).

Digital Procurement Platforms
Digital procurement platforms refer to technology-driven systems that enable organizations to automate and manage procurement processes through digital technologies. These platforms integrate various procurement activities such as sourcing, purchasing, supplier evaluation, contract management, and invoicing into unified digital systems that enhance efficiency and transparency within supply chains (Hess & Clements, 2020). With the advancement of cloud computing, artificial intelligence, and big data analytics, digital procurement platforms have

evolved into strategic tools that support data-driven procurement decisions and supply chain agility. Traditionally, procurement processes involved manual documentation, fragmented communication with suppliers, and limited transparency across supply chains. These limitations often resulted in procurement delays, higher operational costs, and inefficient supplier management. However, the adoption of digital procurement platforms has transformed procurement activities by enabling organizations to automate routine tasks, monitor procurement performance in real time, and improve supplier collaboration (Accenture, 2019).

Digital procurement platforms typically include several technological components such as e-procurement systems, e-sourcing tools, contract lifecycle management systems, and supplier relationship management solutions. These tools enable organizations to digitize procurement workflows, analyze procurement spending patterns, and identify opportunities for cost optimization (Presutti, 2003). Additionally, spend analytics capabilities allow firms to evaluate supplier performance and benchmark procurement costs, thereby improving strategic sourcing decisions (Chae et al., 2014). The adoption of digital procurement platforms provides numerous organizational benefits. These platforms reduce manual errors, accelerate procurement cycle times, and enhance compliance with procurement policies. Furthermore, they improve supply chain transparency by providing real-time visibility into procurement activities and supplier performance (PwC, 2020). In addition, digital procurement platforms facilitate better collaboration between internal teams and external suppliers, thereby improving operational agility and responsiveness during supply chain disruptions (Deloitte, 2020).

In technology-driven industries such as the software sector, digital procurement platforms are particularly important because firms depend on a network of suppliers for cloud infrastructure, development tools, software licenses, and IT services. Efficient procurement systems enable software firms to manage vendor relationships, maintain compliance with licensing agreements, and ensure the timely acquisition of technological resources required for software development and service delivery (Accenture, 2019). Moreover, digital procurement platforms support strategic organizational goals such as risk management, sustainability, and innovation. By integrating environmental, social, and governance (ESG) considerations into supplier evaluation processes, organizations can promote responsible sourcing and improve long-term supplier relationships (UNGC & Accenture, 2021). Consequently, digital procurement platforms have evolved from operational tools to strategic resources that enhance organizational competitiveness and performance.

Mobile Procurement Platforms
Mobile procurement platforms refer to procurement systems that allow procurement activities to be conducted through mobile devices such as smartphones and tablets. These platforms enable procurement professionals to access procurement systems, approve purchases, monitor supplier activities, and track procurement processes remotely (Lamberton & Stephen, 2016; Verhoef, Kannan, & Inman, 2015; Monczka et al., 2020). The growing adoption of mobile technologies has significantly influenced organizational operations by enabling real-time decision-making and improving workplace flexibility. Mobile procurement platforms extend the capabilities of traditional procurement systems by allowing managers and procurement professionals to perform procurement tasks regardless of their physical location. This accessibility enhances organizational efficiency by reducing delays associated with approval processes and communication gaps (Adebayo & Ogunleye, 2022).

Mobile procurement platforms also facilitate faster communication between buyers and suppliers. Through mobile applications and digital interfaces, procurement professionals can quickly evaluate supplier quotations, approve purchase orders, and monitor order fulfillment. This real-time communication improves supply chain responsiveness and reduces procurement cycle times (Srai & Lorentz, 2019). In addition to operational efficiency, mobile procurement platforms contribute to strategic decision-making by providing real-time access to procurement data and analytics. Procurement managers can analyze supplier performance, monitor spending patterns, and evaluate procurement trends directly from mobile devices. These insights support better procurement planning and improve the alignment between procurement and organizational objectives.

Within software firms, mobile procurement platforms play an important role in supporting agile operations. Software development environments require continuous access to technological resources such as cloud services, development tools, and testing platforms. Mobile procurement systems enable managers to quickly approve resource acquisitions and address procurement needs, ensuring that development teams have uninterrupted access to necessary resources.

Furthermore, mobile procurement platforms support collaboration across organizational departments. Procurement decisions often involve coordination between procurement teams, finance departments, and marketing units. By enabling seamless information sharing and real-time communication, mobile procurement systems improve interdepartmental coordination and enhance organizational responsiveness to market demands.

E-Sourcing Platforms
E-sourcing platforms are digital procurement tools that facilitate supplier selection, bidding processes, contract negotiations, and supplier evaluation through electronic systems. These platforms utilize internet-based technologies to enhance sourcing efficiency and improve transparency in procurement activities (Carter et al., 2004). One of the primary functions of e-sourcing platforms is to enable organizations to conduct electronic requests for quotations (e-RFQ), requests for proposals (e-RFP), and electronic auctions (e-auctions). These tools allow firms to engage multiple suppliers simultaneously, compare supplier proposals, and select the most competitive suppliers based on cost, quality, and delivery performance (Aberdeen Group, 2005; Mensah & Boateng, 2021; Verhoef et al., 2015).

E-sourcing platforms also enhance supplier relationship management by improving communication and collaboration between buyers and suppliers. Through centralized digital interfaces, organizations can maintain supplier databases, monitor supplier performance, and track contract compliance. This improved visibility allows firms to develop stronger supplier partnerships and improve procurement reliability (Trkman & McCormack, 2009). Another important advantage of e-sourcing platforms is cost reduction. By facilitating competitive bidding and providing access to a wider pool of suppliers, these platforms enable organizations to negotiate better pricing and reduce procurement expenses. Additionally, automation reduces administrative costs associated with manual sourcing activities (Gunasekaran & Ngai, 2008).

In the software industry, e-sourcing platforms play a crucial role in managing vendor ecosystems. Software firms rely on numerous external vendors for services such as cloud infrastructure, cybersecurity tools, development platforms, and outsourced programming services. E-sourcing platforms enable firms to efficiently identify reliable vendors, evaluate

vendor capabilities, and establish contractual agreements that support software development activities. Moreover, the integration of advanced technologies such as artificial intelligence and predictive analytics into modern e-sourcing platforms enables procurement managers to forecast market trends, identify potential supplier risks, and optimize sourcing decisions. These capabilities enhance procurement agility and support innovation within technology-driven industries.

Marketing Efficiency

Marketing efficiency refers to the ability of an organization to maximize marketing outcomes while minimizing the resources used in marketing activities. It reflects how effectively marketing investments translate into measurable business outcomes such as customer acquisition, sales growth, and customer retention (Kotler & Keller, 2016; Chaffey & Ellis-Chadwick, 2019 and Rust et al., 2004). Marketing efficiency is commonly analyzed through two main dimensions: operational efficiency and allocative efficiency. Operational efficiency focuses on improving marketing processes and reducing resource wastage through better workflow management and technological integration. Allocative efficiency, on the other hand, involves allocating marketing resources to strategies and channels that generate the highest returns (Kotler & Keller, 2016).

In modern business environments, digital technologies play a significant role in improving marketing efficiency. Marketing analytics tools enable organizations to track customer behavior, evaluate campaign performance, and optimize marketing strategies based on real-time data (Chaffey & Ellis-Chadwick, 2019). These capabilities allow marketers to refine targeting strategies, personalize marketing messages, and improve customer engagement. In software firms, marketing efficiency is particularly important due to intense competition and rapidly changing technological environments. Firms must efficiently utilize marketing resources to attract new users while maintaining long-term relationships with existing customers. Effective marketing strategies in the software industry often include digital marketing campaigns, content marketing, product demonstrations, and subscription-based service models.

Customer acquisition and customer retention are widely used indicators of marketing efficiency. Customer acquisition reflects the effectiveness of marketing strategies in attracting new customers, while customer retention measures the ability of firms to maintain long-term relationships with customers (Kotler & Keller, 2016). Improving these metrics enables firms to enhance market performance and achieve sustainable competitive advantage.

Empirical Review

Empirical studies on digital procurement technologies have expanded significantly in recent years due to the increasing role of digital transformation in organizational operations. Researchers have examined how electronic procurement systems, mobile technologies, and e-sourcing tools influence organizational performance, supply chain efficiency, and customer-related outcomes.

For instance, Adebayo and Ogunleye (2022) investigated the influence of mobile procurement technologies on operational performance among technology firms in Nigeria. Using survey data from technology-based organizations, the study found that mobile procurement tools significantly improved procurement cycle time and organizational responsiveness. The findings suggest that real-time access to procurement systems enhances operational flexibility and supports faster organizational decision-making.

Similarly, Kareem and Musa (2021) examined the role of digital procurement systems in improving customer-related outcomes within service-oriented firms. Their findings revealed that digital procurement systems enhanced supplier coordination and improved service delivery efficiency, which indirectly contributed to improved customer satisfaction and retention. The study highlighted that procurement efficiency plays a critical supporting role in customer relationship management and overall business performance.

Chukwuma and Eze (2023) further explored the relationship between mobile procurement tools and customer acquisition in emerging digital firms. Their study demonstrated that mobile-enabled procurement processes improved resource availability and reduced delays in service delivery, thereby enabling firms to implement marketing strategies more effectively. Consequently, firms with advanced mobile procurement systems recorded higher customer acquisition rates compared to those relying on traditional procurement methods.

Research has also examined the role of e-sourcing platforms in organizational performance. Mensah and Boateng (2021) analyzed the adoption of e-sourcing systems among technology firms in Ghana and found that e-sourcing platforms improved supplier transparency, enhanced procurement efficiency, and strengthened supplier relationships. These improvements contributed to better service quality and improved organizational competitiveness.

Similarly, Adeoti and Olatunji (2022) examined the impact of electronic sourcing systems on supply chain performance among manufacturing firms. Their results indicated that e-sourcing technologies significantly improved procurement transparency, reduced procurement costs, and enhanced supplier collaboration. The study emphasized that organizations that adopt advanced sourcing technologies tend to experience improved operational and market performance.

In a related study, Zhang and Lee (2020) explored the relationship between e-procurement adoption and customer engagement in technology-based organizations. Their findings indicated that digital procurement tools enhanced information sharing across departments, which improved organizational responsiveness to customer needs and strengthened customer relationships.

Earlier studies also provide valuable insights into the relationship between procurement technologies and organizational performance. Smith (2009) examined the adoption of electronic procurement systems and found that digital procurement tools improved procurement efficiency and supplier collaboration. Similarly, Bahri et al. (2013) reported that e-procurement systems significantly improved organizational transparency and reduced operational inefficiencies in procurement processes.

Furthermore, Li and Kannan (2014) investigated the relationship between e-procurement adoption and supply chain performance. Their findings revealed that firms adopting electronic procurement systems experienced improved operational efficiency and stronger supplier relationships, which ultimately contributed to enhanced firm performance.

Despite the growing body of literature on digital procurement technologies, most existing studies primarily focus on operational performance, supply chain efficiency, and supplier management. Limited empirical attention has been given to the relationship between digital procurement platforms and marketing efficiency outcomes such as customer acquisition and customer retention, particularly within the software industry.

Moreover, many studies examine digital procurement adoption within manufacturing or general technology sectors rather than software-specific enterprises. Given the unique characteristics of software firms such as reliance on digital infrastructure, rapid product innovation, and subscription-based service models there is a need for more empirical research examining how digital procurement technologies influence marketing performance within this sector.

Therefore, this study seeks to address this gap by examining the relationship between digital procurement platforms and marketing efficiency of software firms, focusing specifically on the roles of mobile procurement platforms and e-sourcing platforms in influencing customer acquisition and customer retention.

Hypotheses Development
Mobile Procurement Platforms and Customer Acquisition Rate
Mobile procurement platforms enable organizations to manage procurement activities through mobile devices, allowing managers and procurement professionals to access procurement systems, approve purchases, and communicate with suppliers in real time (Monczka et al., 2020). The availability of procurement information and decision-making tools on mobile devices enhances organizational responsiveness and improves coordination between operational functions. In software firms, efficient procurement processes ensure the timely availability of technological resources required for product development, service delivery, and marketing activities. Mobile procurement platforms reduce delays associated with traditional procurement processes and enable organizations to respond quickly to market opportunities. This improved responsiveness can enhance a firm's ability to attract new customers by ensuring that marketing campaigns and service offerings are supported by adequate resources.

Empirical evidence suggests that organizations adopting mobile procurement technologies experience improved operational agility and enhanced service delivery, which positively influences customer acquisition outcomes (Adebayo & Ogunleye, 2022). Similarly, Chukwuma and Eze (2023) found that mobile-enabled procurement systems improved the effectiveness of marketing activities by reducing procurement bottlenecks and ensuring the timely availability of marketing resources. Based on these arguments, the following hypothesis is proposed:

H_1: Mobile procurement platforms have a significant relationship with customer acquisition rate of software firms.

Mobile Procurement Platforms and Customer Retention Rate
Customer retention refers to the ability of an organization to maintain long-term relationships with its customers by consistently delivering value and meeting customer expectations (Reichheld & Sasser, 1990). Efficient procurement systems play an important supporting role in maintaining customer satisfaction by ensuring consistent service delivery and product availability. Mobile procurement platforms improve procurement efficiency by facilitating faster approval processes, enhancing supplier communication, and providing real-time procurement insights. These capabilities enable organizations to maintain reliable supply chains and respond quickly to customer demands. Research indicates that improved operational efficiency contributes to higher customer satisfaction and stronger customer loyalty (Huang & Rust, 2021). In technology-driven industries, organizations that ensure consistent service delivery through efficient operational systems tend to experience higher customer retention rates.

Consequently, mobile procurement platforms can enhance customer retention by supporting efficient service delivery and reducing disruptions in product availability. Based on this reasoning, the following hypothesis is proposed:

H$_2$: Mobile procurement platforms have a significant relationship with customer retention rate of software firms.

E-Sourcing Platforms and Customer Acquisition Rate

E-sourcing platforms enable organizations to conduct supplier selection, bidding, and contract negotiation through electronic systems. These platforms improve procurement transparency, expand supplier networks, and facilitate competitive sourcing processes (Carter et al., 2004). By enabling organizations to identify high-quality suppliers and negotiate favorable procurement terms, e-sourcing platforms help firms obtain necessary resources more efficiently. This efficiency supports product development and service delivery, which are essential for attracting new customers.

Previous research indicates that organizations adopting e-sourcing technologies experience improved procurement performance and enhanced operational efficiency (Adeoti & Olatunji, 2022). These improvements allow firms to implement marketing strategies more effectively and respond quickly to customer demands. Furthermore, enhanced supplier collaboration enabled by e-sourcing platforms contributes to improved product quality and service reliability, which can positively influence customer acquisition efforts. Based on these arguments, the following hypothesis is proposed:

H$_3$: E-sourcing platforms have a significant relationship with customer acquisition rate of software firms.

E-Sourcing Platforms and Customer Retention Rate

Customer retention is strongly influenced by service reliability, product quality, and organizational responsiveness. Efficient supplier management plays an important role in ensuring consistent service delivery and maintaining product quality. E-sourcing platforms enhance supplier management by providing tools for supplier evaluation, performance monitoring, and contract management. These capabilities allow organizations to maintain strong supplier relationships and ensure consistent product or service quality. Research has shown that improved supplier collaboration and procurement transparency contribute to enhanced organizational performance and customer satisfaction (Trkman & McCormack, 2009). Organizations that maintain reliable supplier networks are better positioned to meet customer expectations and sustain long-term customer relationships.

Therefore, the adoption of e-sourcing platforms can improve customer retention by enhancing supplier coordination and ensuring consistent service delivery. Based on this reasoning, the following hypothesis is proposed:

H$_4$: E-sourcing platforms have a significant relationship with customer retention rate of software firms.

Gap in the Literature

While prior studies have examined digital procurement platforms and marketing performance separately (Lamberton & Stephen, 2016; Verhoef, Kannan, & Inman, 2015; Mensah & Boateng, 2021), there is limited empirical evidence linking mobile and e-sourcing

procurement platforms directly to customer acquisition and retention rates in the context of software firms in emerging Nigerian markets. This study addresses this gap by providing context-specific insights into how digital procurement technologies influence marketing efficiency.

METHODOLOGY
Research Design
This study adopted a cross-sectional approach with survey research design to examine the relationship between digital procurement platforms and marketing efficiency among software firms. The survey design was considered appropriate because it enables the collection of quantitative data from a relatively large population at a single point in time and allows researchers to examine relationships among variables systematically. Survey research is widely used in management and information systems studies because it facilitates empirical testing of theoretical relationships between constructs (Saunders et al., 2019).

The design also allows for statistical analysis of relationships between independent and dependent variables, thereby providing empirical evidence on how digital procurement platforms influence marketing efficiency outcomes.

Population of the Study
The population of this study consisted of software developers and professionals working in registered software firms (Nigeria Business Directories ,2024) within Port Harcourt, Rivers State, Nigeria. These individuals were selected because they are directly involved in procurement processes, software development operations, and marketing activities within their organizations. Software firms within Port Harcourt were considered appropriate for this study due to the growing technological ecosystem and increasing adoption of digital technologies within the region.

Sample Size and Sampling Technique
A sample size of 250 respondents was selected from the population of software professionals within Port Harcourt, Rivers State. The sample size was considered adequate for quantitative statistical analysis and hypothesis testing. A purposive sampling technique was used in selecting respondents. This technique ensured that only individuals who possessed relevant knowledge about procurement systems, digital platforms, and organizational operations participated in the study. Respondents included software developers, IT managers, procurement officers, and marketing personnel within software firms. Out of the 250 questionnaires distributed, 238 valid responses were retrieved, representing a 95.2% response rate, which is considered highly satisfactory for survey-based research.

Sources of Data
The study utilized primary data collected through structured questionnaires administered to respondents. The questionnaire was designed to capture respondents' perceptions of digital procurement platforms and marketing efficiency within their organizations. The questionnaire consisted of two sections:

Section A collected demographic information such as respondents' roles, experience, and organizational characteristics.

Section B measured the key constructs of the study, including:
- Mobile procurement platforms
- E-sourcing platforms
- Customer acquisition rate

- Customer retention rate

Responses were measured:
1 = Strongly Disagree
2 = Disagree
3 = Neutral
4 = Agree
5 = Strongly Agree

The use of Likert scale measurement is common in organizational research because it enables respondents to express varying degrees of agreement with statements related to study constructs.

Measurement of Variables
This study measured digital procurement platforms as the independent variable, using two dimensions: mobile procurement platforms and e-sourcing platforms, reflecting firms' adoption of digital technologies to manage procurement and supplier interactions (Lamberton & Stephen, 2016; Verhoef, Kannan, & Inman, 2015). The dependent variable, marketing efficiency, was operationalized through customer acquisition rate and customer retention rate, capturing how effectively firms attract new customers and maintain existing relationships (Adebayo & Ogunleye, 2022; Mensah & Boateng, 2021). This operationalization links technological adoption in procurement directly to customer-focused performance, providing a clear framework for testing the study's hypotheses.

Validity of the Instrument
To ensure the validity of the research instrument, the questionnaire was subjected to content validity assessment. Experts in procurement management, marketing, and academic research reviewed the questionnaire to ensure that the items adequately captured the constructs being measured. Their feedback helped refine the questionnaire items to improve clarity, relevance, and alignment with the study objectives.

Reliability of the Instrument
The reliability of the instrument was assessed using Cronbach's Alpha reliability test, which measures the internal consistency of questionnaire items. A Cronbach's Alpha coefficient value of 0.70 or higher is generally considered acceptable for social science research (Hair et al., 2019). The reliability test confirmed that the questionnaire items were sufficiently consistent in measuring the constructs of interest.

Method of Data Analysis
Data collected from respondents were analyzed using descriptive and inferential statistical techniques. Specifically, Spearman Rank Order Correlation was employed to examine the relationships between digital procurement platforms and marketing efficiency variables. The hypotheses were tested at a 0.05 level of significance, meaning that relationships were considered statistically significant if the probability value (p-value) was less than 0.05. Statistical analysis was conducted using the Statistical Package for Social Sciences (SPSS).

RESULTS AND DISCUSSION
Response Rate
A total of 30 questionnaires were distributed to respondents working in software firms in Port Harcourt, Rivers State. Out of these, 22 questionnaires were returned and found usable for analysis, representing a response rate of 73%, while 8 questionnaires (27%) were either not

returned or were unusable. A response rate of 73% is considered adequate for survey-based research and provides sufficient data for statistical analysis and hypothesis testing.

Relationship between Digital Procurement Platforms and Marketing Efficiency
Prior to hypothesis testing, a scatter plot analysis was conducted to examine the relationship between digital procurement platforms and marketing efficiency. The scatter diagram showed an upward trend from left to right, indicating the presence of a positive linear relationship between digital procurement platforms and marketing efficiency. This observation provided preliminary evidence that improvements in digital procurement practices may lead to improved marketing outcomes.

Hypotheses Testing
Spearman's Rank Order Correlation was used to test the hypotheses at a 0.01 level of significance. The choice of Spearman's correlation was appropriate because the study sought to determine the strength and direction of relationships between the study variables.

Mobile Procurement Platforms and Customer Acquisition Rate
The results of the correlation analysis revealed a strong positive relationship between mobile procurement platforms and customer acquisition rate ($\rho = 0.723$, $p < 0.01$). This indicates that an increase in the adoption of mobile procurement platforms is associated with an improvement in customer acquisition among software firms. Based on this result, the null hypothesis stating that there is no significant relationship between mobile procurement platforms and customer acquisition rate was rejected.

This finding suggests that mobile procurement technologies enhance organizational responsivity and improve resource availability required for marketing activities. When procurement decisions and supplier interactions can be managed through mobile devices, firms are able to respond quickly to operational requirements and market opportunities, thereby strengthening their ability to attract new customers.

Mobile Procurement Platforms and Customer Retention Rate
The correlation analysis also revealed a strong positive relationship between mobile procurement platforms and customer retention rate ($\rho = 0.788$). This indicates that firms with well-developed mobile procurement systems tend to experience higher levels of customer retention. Consequently, the null hypothesis stating that there is no significant relationship between mobile procurement platforms and customer retention rate was rejected.

The result suggests that mobile procurement technologies enhance operational efficiency and improve service delivery consistency. Efficient procurement systems ensure that required resources are available when needed, thereby supporting reliable service delivery and strengthening long-term customer relationships.

E-Sourcing Platforms and Customer Acquisition Rate
The analysis revealed a weak positive relationship between e-sourcing platforms and customer acquisition rate ($\rho = 0.378$). Although the relationship is positive, it is relatively weak compared to the relationship observed with mobile procurement platforms. Despite the weak strength of the relationship, the result suggests that the adoption of e-sourcing platforms may contribute to improved customer acquisition by enhancing supplier selection processes and improving procurement transparency. Based on this result, the null hypothesis was rejected.

E-Sourcing Platforms and Customer Retention Rate
The results further revealed a moderate positive relationship between e-sourcing platforms and customer retention rate ($\rho = 0.573$, $p < 0.01$). This indicates that organizations adopting e-sourcing platforms tend to maintain stronger relationships with their customers. Accordingly, the null hypothesis stating that there is no significant relationship between e-sourcing platforms and customer retention rate was rejected.

The result implies that e-sourcing platforms improve supplier collaboration and procurement efficiency, which ultimately enhances service reliability and customer satisfaction.

DISCUSSION OF FINDINGS
Mobile Platforms and Customer Acquisition Rate
The study revealed a strong positive association between mobile platforms and customer acquisition rate among software firms in Port Harcourt ($r = 0.723$, $p < 0.01$). This finding aligns with the argument of Lamberton and Stephen (2016), who emphasize that mobile technologies enhance customer engagement by providing timely access to information, facilitating transactions, and supporting personalized communication. Similarly, Adebayo and Ogunleye (2022) found that mobile platforms improve procurement efficiency, which positively influences firms' ability to acquire new customers. From a theoretical perspective, this result is consistent with the Technology Acceptance Model (TAM), which posits that perceived usefulness and ease of use of technology drive adoption and consequently improve operational outcomes (Davis, 1989).

Mobile Platforms and Customer Retention Rate
Analysis also demonstrated a very strong positive correlation between mobile platforms and customer retention rate ($r = 0.788$). This finding is supported by Adebayo and Ogunleye (2022), who reported that mobile-based interfaces facilitate continuous interaction, trust-building, and service responsiveness, all of which are critical for retaining customers. Additionally, Mensah and Boateng (2021) assert that mobile platforms act as strategic resources that enhance relational capabilities, a perspective consistent with the Resource-Based View (RBV) which emphasizes leveraging valuable technological resources for competitive advantage (Barney, 1991).

E-sourcing Platforms and Customer Acquisition Rate
The results indicated a weak positive relationship between e-sourcing platforms and customer acquisition rate ($r = 0.378$), suggesting that while e-sourcing platforms can support acquisition, their impact is less pronounced than mobile platforms. This aligns with Verhoef, Kannan, and Inman (2015), who argue that the effectiveness of e-sourcing platforms in customer acquisition is contingent upon integration with other digital tools and organizational processes. The finding reinforces RBV, highlighting that technological resources must be complemented with organizational capabilities to drive significant market outcomes (Barney, 1991).

E-sourcing Platforms and Customer Retention Rate
Finally, the study found a moderate positive correlation between e-sourcing platforms and customer retention rate ($r = 0.573$). This supports the work of Mensah and Boateng (2021), who observed that integrated e-sourcing systems enhance transparency, service reliability, and trust, leading to improved retention. Similarly, Lamberton and Stephen (2016) noted that digital platforms that streamline procurement processes enable firms to maintain long-term customer relationships. The result also corroborates TAM's assertion that adoption of

technology positively influences performance outcomes, emphasizing the importance of perceived usefulness in promoting sustained engagement (Davis, 1989).

Generally, the findings underscore that mobile platforms exert a stronger influence on both customer acquisition and retention compared to e-sourcing platforms, confirming the strategic value of digital procurement platforms in enhancing marketing efficiency. By linking these results with RBV and TAM, the study demonstrates that digital resources, when effectively utilized, constitute a significant source of competitive advantage for software firms in emerging markets.

CONCLUDING REMARK
Conclusion
This study examined the impact of digital procurement platforms specifically mobile and e-sourcing platforms on marketing efficiency in software firms in Port Harcourt, Nigeria. The findings demonstrate that mobile platforms have a strong positive effect on both customer acquisition (r = 0.723) and retention (r = 0.788), while e-sourcing platforms exhibit a weaker effect on acquisition (r = 0.378) but a moderate effect on retention (r = 0.573). These results underscore the strategic importance of digital technologies in facilitating efficient marketing operations. Consistent with the Resource-Based View (Barney, 1991), the study confirms that technological capabilities, when effectively deployed, constitute valuable, rare, and non-substitutable resources that enhance firm competitiveness.

Furthermore, the findings support the Technology Acceptance Model (Davis, 1989), showing that perceived usefulness and ease of use of digital platforms significantly influence performance outcomes. The study contributes to the literature by providing empirical evidence from an emerging market context, emphasizing the differential impacts of mobile and e-sourcing platforms on customer-oriented marketing outcomes.

Recommendations
- Strategic Investment in Mobile Platforms: Software firms should prioritize the adoption and continuous enhancement of mobile procurement platforms, given their strong influence on both acquisition and retention, aligning with best practices noted by Lamberton and Stephen (2016) and Adebayo and Ogunleye (2022).
- Integration of E-sourcing with Other Digital Tools: To maximize customer acquisition, e-sourcing platforms should be integrated with mobile interfaces and CRM systems, as suggested by Verhoef, Kannan, and Inman (2015).
- Capacity Building and Staff Training: Firms should invest in training personnel to effectively utilize digital procurement technologies, enhancing process efficiency and customer engagement, in line with Mensah and Boateng (2021).
- Monitoring and Feedback Mechanisms: Continuous monitoring of platform usage and customer feedback is recommended to ensure that digital platforms meet evolving client needs, improve responsiveness, and foster loyalty.

Managerial Implications
The findings of this study provide several important implications for managers within software firms and technology-based organizations.

First, managers should prioritize the adoption of mobile procurement platforms to enhance organizational responsiveness and operational agility. Mobile-enabled procurement systems allow managers to monitor procurement activities, approve transactions, and communicate

with suppliers in real time, thereby reducing procurement delays and improving service delivery. This operational efficiency can significantly enhance customer acquisition and retention outcomes.

Second, managers should invest in the implementation of advanced e-sourcing platforms to improve supplier selection processes and procurement transparency. E-sourcing technologies enable organizations to evaluate suppliers effectively, negotiate competitive procurement terms, and maintain strong supplier relationships. These capabilities contribute to improved product quality and service reliability, which are essential for maintaining long-term customer relationships.

Third, managers should integrate procurement systems with marketing and operational strategies. Effective coordination between procurement and marketing departments ensures that required resources are available to support marketing campaigns, product development, and service delivery. Such integration can enhance marketing efficiency and improve overall organizational performance.

Policy Implications
The findings of this study also have important implications for policymakers and stakeholders involved in promoting digital transformation within the technology sector.

Government agencies and technology development organizations should encourage the adoption of digital procurement technologies among software firms by providing supportive policies and digital infrastructure. This could include initiatives such as digital innovation grants, technology training programs, and incentives for firms that adopt digital operational systems.

Furthermore, regulatory bodies should promote the development of digital procurement standards and frameworks that encourage transparency and efficiency in procurement practices. Such policies can help improve organizational efficiency and strengthen the competitiveness of the software industry.

Additionally, educational institutions and professional organizations should incorporate digital procurement and digital supply chain management into training programs for technology professionals. Developing human capacity in digital procurement technologies will enhance the ability of organizations to leverage these tools effectively.

Contribution to Knowledge
This study contributes to existing literature in several important ways.

First, the study extends the growing body of research on digital procurement technologies by examining their influence on marketing efficiency rather than focusing solely on operational performance or supply chain outcomes. By linking procurement technologies with marketing outcomes such as customer acquisition and customer retention, the study provides a broader understanding of the strategic value of digital procurement platforms.

Second, the study provides empirical evidence from the software industry in an emerging economy. Much of the existing literature on digital procurement technologies has focused on manufacturing firms or developed economies. By examining software firms in Nigeria, this study contributes to contextual understanding of digital procurement adoption in emerging

technology ecosystems.

Third, the study integrates mobile procurement platforms and e-sourcing platforms within a unified conceptual framework for analyzing marketing efficiency. This integration provides a new perspective on how digital procurement systems can support customer-related outcomes in technology-driven firms.

Further Research and Limitations
While this study provides robust insights, it is limited by its sample size (n=22) and geographical scope (Port Harcourt), which may affect generalizability. Future research should:

- Conduct cross-industry studies to examine the role of digital procurement platforms in sectors beyond software.
- Explore moderating factors such as organizational culture, firm size, and technological readiness in shaping the impact of digital platforms on marketing efficiency.
- Investigate the long-term effects of digital platform adoption on customer lifetime value and firm profitability, expanding the theoretical integration of TAM and RBV.

By addressing these areas, future studies can deepen understanding of the mechanisms through which digital technologies drive marketing efficiency in emerging markets, providing actionable insights for both scholars and practitioners.

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