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E-ORDERING PRACTICES AND COMPETITIVENESS OF OIL AND GAS FIRMS IN RIVERS STATE

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Abstract
This study investigated the relationship between e-ordering practices and the competitiveness of oil and gas firms in Rivers State, Nigeria. Competitiveness was operationalized through two key measures — operational efficiency and customer satisfaction. The study was theoretically anchored on the Technology Acceptance Model (Davis, 1989) and the Resource-Based View (Barney, 1991), which together provide complementary explanations of how digital ordering system adoption generates competitive capabilities. A correlational research design was adopted. The study population comprised twenty (20) oil and gas firms in Rivers State, from which a stratified purposive sample of 116 respondents was drawn. A total of 110 valid responses were used for analysis. Data were collected using structured questionnaires administered to managers and senior staff across procurement, operations, marketing, and ICT functions. Hypotheses were tested using Pearson Product Moment Correlation (PPMC) at a 0.05 significance level. The findings indicated that e-ordering has a moderate positive and statistically significant relationship with operational efficiency ($r = 0.563$, $p < 0.05$) and a moderate positive and significant relationship with customer satisfaction ($r = 0.596$, $p < 0.05$). The study concludes that e-ordering practices are significant, though moderate, drivers of competitive outcomes in oil and gas firms. It recommends that firms invest in advanced web-based ordering systems, integrate e-ordering platforms with enterprise resource planning (ERP) systems, and build staff capacity to leverage digital ordering capabilities for enhanced operational and customer performance.

Keywords: E-Ordering, Competitiveness, Operational Efficiency, Customer Satisfaction, Oil and Gas, Technology Acceptance Model, Resource-Based View, Rivers State

Introduction

The competitive dynamics of the global oil and gas industry have undergone a profound transformation over the past two decades, shaped by commodity price volatility, technological disruption, increasing environmental regulatory pressure, and the imperative for operational leanness. In this context, the digitisation of procurement processes has emerged as a pivotal strategic lever enabling oil and gas firms to reduce transaction costs, accelerate procurement cycles, and improve the quality and consistency of supply chain outputs (Ebitu, 2014; Nyongesa & Moronge, 2021). Among the dimensions of digital procurement, electronic ordering, the deployment of software-based, internet-enabled systems to create, manage, approve, and track purchase requisitions and orders, occupies a central operational role.

Electronic ordering, commonly referred to as e-ordering, transforms the procurement of both direct and indirect operational inputs from a labour-intensive, paper-based process into a streamlined digital

workflow. By automating requisition approval, supplier notification, delivery tracking, and invoice management, e-ordering systems reduce procurement cycle times, minimize human error, and provide real-time visibility into supply chain activities (Van-Weele, 2010; Reunis, Santema & Harink, 2006). These efficiency gains translate directly into competitive advantages: firms that process orders more quickly and accurately can respond more effectively to client requirements, minimize operational downtime, and deploy resources more strategically.

Within the oil and gas sector in Rivers State, competitiveness is defined by the ability to deliver high-quality services reliably, efficiently, and cost-effectively in the face of intense domestic and international rivalry. Research consistently demonstrates that operational efficiency and customer satisfaction are core dimensions of competitive intensity in service-oriented industries (Wanjiku, Letting, Ithinji & Orwa, 2016; Olawuni, 2019). Operational efficiency determines the extent to which firms convert inputs into outputs without waste, while customer satisfaction reflects the degree to which service delivery meets or exceeds client expectations, both of which are directly influenced by the quality and speed of procurement processes.

Despite growing empirical interest in e-procurement and firm performance, relatively few studies have specifically examined e-ordering as a standalone construct and its relationship with competitiveness outcomes in the Nigerian oil and gas sector. Most existing studies treat e-ordering as one of several e-procurement dimensions within broader performance frameworks (Isoghom & Worgu, 2024; Onwuchekwa & Eyoh, 2024), without isolating its distinct contribution to operational efficiency and customer satisfaction. This gap limits practitioner understanding of the specific mechanisms through which digital ordering systems create competitive value in the oil and gas context.

This study therefore fills this gap by examining the direct relationship between e-ordering practices and competitiveness, operationalized through operational efficiency and customer satisfaction, in oil and gas firms in Rivers State. It is theoretically grounded in the Technology Acceptance Model (TAM) and the Resource-Based View (RBV), which together provide complementary perspectives on how the adoption and integration of e-ordering systems generate competitive capabilities. The specific objectives of the study are to: (i) determine the relationship between e-ordering practices and operational efficiency of oil and gas firms in Rivers State; and (ii) examine the relationship between e-ordering practices and customer satisfaction of oil and gas firms in Rivers State. Correspondingly, the following null hypotheses were formulated: H01: There is no significant relationship between e-ordering and operational efficiency of oil and gas firms in Rivers State; H02: There is no significant relationship between e-ordering and customer satisfaction of oil and gas firms in Rivers State.

Literature Review

Theoretical Framework

This study is anchored on two complementary perspectives: the Technology Acceptance Model (TAM) and the Resource-Based View (RBV). TAM, developed by Davis (1989), explains technology adoption through two perceptual constructs (perceived usefulness and perceived ease of use) which shape attitudes, intentions, and actual usage behaviour. In the context of e-ordering, TAM highlights that adoption is driven by users' belief that such systems enhance efficiency, reduce errors, and provide real-time visibility, thereby improving competitiveness. Empirical studies (Wahid, 2010; Usman et al., 2022)

confirm that perceived usefulness is the strongest predictor of e-procurement adoption, underscoring TAM's relevance in procurement and supply chain contexts.

Complementing TAM, the RBV (Barney, 1991) emphasizes that sustained competitive advantage arises from firm-specific resources that are valuable, rare, inimitable, and non-substitutable. E-ordering systems become strategic resources when effectively embedded into organizational routines, supplier communication, and service delivery processes. Evidence from Ebong and Opara (2022) and Joel and Lagat (2016) demonstrates that e-ordering enhances operational efficiency and supply chain performance, consistent with RBV's assertion that technology yields advantage only when integrated with complementary resources such as skilled staff, ICT infrastructure, and change management practices. Thus, while TAM explains the behavioural drivers of adoption, RBV situates e-ordering as a strategic capability whose competitive impact depends on organizational integration. Together, these frameworks provide a robust lens for examining how e-ordering systems influence competitiveness in procurement and supply chain operations.

E-Ordering as The Transactional Backbone of Digital Procurement

E-ordering is defined as the process of electronically creating, submitting, approving, and tracking purchase requisitions and purchase orders through software systems based on internet technology (Kim, 2002; Reunis, Santema & Harink, 2006). It represents the operational core of digital procurement — the transactional layer at which procurement requirements are converted into formal supplier engagements. While e-sourcing and e-tendering operate at the strategic and competitive layers of procurement, e-ordering manages the execution of procurement decisions in real time, ensuring that required goods and services are requisitioned, ordered, received, and logged in a seamless, auditable digital workflow.

Scholars have articulated multiple conceptual dimensions of e-ordering. Van-Weele (2010) describes it as the phase in which goods and services are ordered from pre-selected, contracted suppliers, with digital systems managing the entire requisition-to-receipt cycle. Arbin (2009) characterizes e-ordering as the electronic application, ordering, and receipt of facility products and services by employees within the strategic procurement frameworks established by management. Gichuhi (2021) highlights its role in electronic document transmission, encompassing order issuance, acknowledgement, delivery instructions, and receipt confirmation, as the defining operational characteristic that distinguishes it from manual purchasing processes.

In oil and gas firms, e-ordering serves a particularly critical function because of the complexity and volume of procurement transactions involved in oilfield operations. Drilling programs, production maintenance, oilfield services, and facility management each generate continuous streams of procurement requisitions that must be processed accurately and rapidly to prevent operational downtime. Digital ordering systems that automate approval workflows, integrate with inventory management systems, and provide real-time order tracking significantly reduce the risk of supply disruptions that can have disproportionately costly operational and safety consequences in the oil and gas context (Mutangili, 2014; Tynchenko et al., 2020). The benefits of e-ordering include reduced transaction processing times, lower administrative costs, improved order accuracy, enhanced supplier communication, and greater transparency in procurement expenditure (Bello, 2002; Huber & Wagner, 2017).

Operational Efficiency as a Strategic Performance Imperative

Operational efficiency refers to an organization's ability to deliver products or services at the highest attainable quality, using the minimum necessary resources, with minimal waste, error, and redundancy (Jacobs & Chase, 2017; Hill & Hill, 2019). It is one of the most widely studied performance dimensions in operations management, capturing the extent to which an organization optimizes the conversion of inputs, including labour, time, materials, technology, and capital, into outputs that satisfy customer and business requirements.

In the oil and gas sector, operational efficiency is particularly consequential because of the capital-intensive nature of oilfield operations, the perishability of operational uptime, and the cascading cost implications of procurement delays. Procurement inefficiencies, including delayed order processing, supplier miscommunication, and manual requisition errors, can trigger production stoppages, equipment idle time, and contractual penalty exposure, all of which represent significant operational efficiency losses. E-ordering addresses these vulnerabilities by automating the procurement workflow, accelerating approval cycles, and providing real-time visibility into order status and inventory levels (Slack & Lewis, 2017; Bicheno & Holweg, 2018).

Empirical evidence linking digital procurement to operational efficiency is robust and consistent across contexts. Isoghom and Worgu (2024) found that e-ordering has a strong positive influence on operational efficiency in oil and gas equipment companies in Rivers State. Ebong and Opara (2022) similarly demonstrated that e-ordering is positively and significantly associated with operational efficiency among firms in the Niger Delta region. Swamy, Nanjundeswaraswamy and Nalini (2014) established that e-procurement technologies generate significant operational efficiency gains in ordering processes across diverse industry sectors. Key performance indicators used to assess operational efficiency include cost per transaction, procurement cycle time, order accuracy rate, inventory turnover, and workforce productivity ratios (Adiele & Uduak, 2018).

Customer Satisfaction as a Competitive Outcome of Procurement Excellence

Customer satisfaction is defined as the degree to which a product or service meets or exceeds the expectations, perceptions, and requirements of its recipient (Kotler, 2016; Saha & Zhao, 2015). It is a psychological and evaluative outcome of the consumption or service delivery experience, reflecting the alignment between anticipated and actual performance. In B2B service contexts such as the oil and gas sector, where clients contract firms for technically complex operational services, customer satisfaction is shaped not only by the technical quality of service delivery but also by the responsiveness, reliability, and communication effectiveness of the service provider throughout the engagement.

The relationship between procurement processes and customer satisfaction operates through multiple mechanisms. Efficient procurement ensures that inputs required for service delivery are available in the right quantity, at the right time, and at the appropriate quality level, directly enabling the service quality outcomes that drive client satisfaction. Procurement delays, stock-outs, or input quality failures cascade into service delivery failures that damage client relationships and satisfaction ratings. Conversely, firms with highly efficient digital procurement systems that minimize input delivery delays and quality deviations are better positioned to consistently meet client expectations (Batenburg, 2017; Gunawardhana & Karunasena, 2012).

E-ordering contributes to customer satisfaction both directly and indirectly. Directly, e-ordering systems that facilitate rapid supplier response, accurate order fulfillment, and real-time delivery tracking enable service providers to meet contractual timelines and specification commitments more consistently. Indirectly, the operational efficiency gains generated by e-ordering, including reduced administrative overhead, faster procurement cycles, and improved inventory management, free up organizational resources for higher-value client relationship management activities (Joel & Lagat, 2016; Yen & Ng, 2013).

Empirical Evidence on E-Ordering as a Driver of Competitive Advantage

The empirical literature on e-ordering and competitive outcomes is growing, with consistent findings supporting a positive association across diverse industry and geographical contexts. Ebong and Opara (2022) conducted a correlational study of e-ordering and business performance in telecommunications firms in Rivers and Bayelsa States, finding statistically significant positive relationships between e-ordering and both service delivery and operational efficiency. The study concluded that e-ordering substantially advances competitive performance in communication-intensive service industries, a finding broadly transferable to the oil and gas context.

Oteki, Namusonge, Sakwa and Ngeno (2019) analysed the influence of electronic order processing on supply chain performance in Kenyan sugar firms, establishing a significant positive relationship between e-ordering adoption and procurement performance. Ngeno and Kinoti (2017) similarly found that electronic procurement dimensions including e-ordering significantly influenced effective supply chain management in Kenya's energy sector, an industry with operational characteristics broadly comparable to oil and gas. Joel and Lagat (2016) examined the effect of e-ordering on supply chain performance in Kenyan retail outlets, establishing a significant positive relationship between e-ordering and supply chain outcomes including customer satisfaction. Swamy et al. (2014) confirmed that digital ordering adoption generates substantial cost savings and efficiency improvements across Indian industries.

Within the Nigerian context, Isoghom and Worgu (2024) found very strong positive relationships between e-ordering and operational efficiency in oil and gas equipment firms in Rivers State, while Abubakar (2024) demonstrated that e-procurement implementation broadly enhances supply chain performance through streamlining, cost reduction, and transparency improvements. Collectively, these studies establish a consistent empirical pattern: e-ordering is a significant predictor of both operational efficiency and customer satisfaction, the key dimensions of competitive intensity examined in this study.

Methodology

This study employed a correlational research design, which is appropriate for examining associations between variables in their natural settings without experimental manipulation. The design enabled systematic measurement of the strength and direction of relationships between e-ordering practices and competitive outcomes, consistent with the exploratory-descriptive objectives of the research. The population comprised all twenty oil and gas firms operating in Rivers State, as listed in the Nigeria Business Directory and Search Engine (2023). To reflect sectoral heterogeneity, the firms were stratified into large-scale multinational operators and small-to-medium indigenous operators. From

each large-scale firm, seven respondents were purposively selected, while five respondents were drawn from each small-to-medium firm, yielding a total of 116 respondents. This stratified purposive sampling ensured that the perspectives captured reflected the diversity of procurement practices across firm types. Respondents were drawn from logistics, operations, marketing, ICT management, and senior administrative functions, thereby ensuring that data represented organizational rather than individual viewpoints.

Primary data were collected using a structured questionnaire divided into three sections: demographic information, items measuring e-ordering practices, and items measuring operational efficiency and customer satisfaction, all assessed on a five-point Likert scale. Content and face validity were established through expert review by academic staff, and recommended modifications were incorporated before administration. Reliability was confirmed through a test-retest procedure with a pilot sample of 20 respondents, with Cronbach's alpha coefficients exceeding the 0.70 threshold, thereby demonstrating adequate internal consistency across all scales.

Data analysis was conducted in two phases. Descriptive statistics such as frequencies, percentages, and weighted mean scores were used to profile respondents and assess item-level perceptions, with a criterion mean of 3.0 adopted for interpretation. In the second phase, Pearson Product Moment Correlation (PPMC) was employed to test the hypothesised relationships between e-ordering and competitive outcomes at a 0.05 significance level. Correlation coefficients were interpreted using conventional magnitude ranges, and hypothesis testing followed the decision rule of rejecting the null hypothesis if $p < 0.05$ and retaining it otherwise. All analyses were performed using SPSS version 25.0.

Results

Response Rate and Demographic Profile

Of the 116 questionnaires administered, 113 were returned, of which 110 (94.8%) were valid and used for analysis. Three returned questionnaires were excluded on account of incomplete responses that rendered them unsuitable for analysis. The respondent profile revealed that the majority were aged between 26 and 35 years (46.4%), male (52.7%), married (59.1%), holders of a Bachelor's degree (49.1%), and possessed between 5 and 9 years of work experience (34.5%). This profile reflects a relatively experienced and formally educated workforce with substantive familiarity with the procurement and operational practices of oil and gas firms in Rivers State, lending credibility to respondent assessments of e-ordering adoption and its competitive implications.

Descriptive Analysis of Study Variables

Table 2 presents the descriptive statistics for all items on e-ordering, operational efficiency, and customer satisfaction. All items recorded weighted mean scores above the criterion mean of 3.0, confirming respondent agreement with each statement.

Table 2: Descriptive Summary of Study Variables

Variable	Item	Weighted Mean	Decision
E-Ordering	Firm needs mostly managed by web platforms	3.87	Agreed
	Web-based ordering features adopted	3.95	Agreed
	Functional requests facilitated by online processes	4.16	Agreed
Operational Efficiency	Efficiency avoids wasting materials and time	3.78	Agreed
	Operational efficiency generates greater income	3.79	Agreed
	Effectiveness achieved through efficient operation	3.89	Agreed
Customer Satisfaction	Customer complaints addressed and resolved effectively	3.75	Agreed
	Lower levels of complaints consistently recorded	3.75	Agreed
	Investment in technology to improve customer satisfaction	3.92	Agreed

For e-ordering, weighted means ranged from 3.87 to 4.16, indicating strong agreement that firms utilize web-based procurement platforms and increasingly facilitate functional requests through online processes. The highest-rated item, functional requests facilitated by online processes (mean = 4.16), suggests that respondents particularly value e-ordering systems as tools for accelerating internal procurement workflows. For operational efficiency, means ranged from 3.78 to 3.89, reflecting consistent agreement that efficient operations reduce waste and generate income returns. For customer satisfaction, means ranged from 3.75 to 3.92, indicating that firms perceive technology investment in service delivery as a driver of reduced complaints and improved client satisfaction outcomes.

Hypotheses Testing

H01: E-Ordering and Operational Efficiency

Table 3: PPMC Results for E-Ordering and Operational Efficiency (N = 110)

Variable	E-Ordering	Operational Efficiency
E-Ordering (Pearson r)	1.000	.563**
Sig. (2-tailed)	—	.010
Operational Efficiency (Pearson r)	.563**	1.000
Sig. (2-tailed)	.010	—

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

The PPMC coefficient of r = 0.563 indicates a moderate positive relationship between e-ordering and operational efficiency. Since the p-value (0.010) is less than the 0.05 significance threshold, the null hypothesis H01 is rejected. The study therefore concludes that there is a significant positive relationship between e-ordering and operational efficiency of oil and gas firms in Rivers State.

H02: E-Ordering and Customer Satisfaction

Table 4: PPMC Results for E-Ordering and Customer Satisfaction (N = 110)

Variable	E-Ordering	Customer Satisfaction
E-Ordering (Pearson r)	1.000	.596**
Sig. (2-tailed)	—	.007
Customer Satisfaction (Pearson r)	.596**	1.000
Sig. (2-tailed)	.007	—

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

The PPMC coefficient of r = 0.596 indicates a moderate positive relationship between e-ordering and customer satisfaction. Since the p-value (0.007) is less than the 0.05 significance threshold, the null hypothesis H02 is rejected. The study therefore concludes that there is a significant positive relationship between e-ordering and customer satisfaction of oil and gas firms in Rivers State.

Discussion of Findings

The study revealed moderate but statistically significant positive relationships between e-ordering and both operational efficiency ($r = 0.563$, $p < 0.05$) and customer satisfaction ($r = 0.596$, $p < 0.05$). These findings align with the Resource-Based View, which emphasizes that technological capabilities such as e-ordering enhance efficiency only when supported by complementary resources like ICT infrastructure, skilled personnel, and organizational culture. The moderate strength of the relationship reflects contextual constraints in Rivers State, where infrastructure and digital skills are unevenly distributed, limiting the full realization of efficiency gains. Empirical evidence from prior studies in the Niger Delta and other sectors corroborates these results, confirming that e-ordering reduces cycle times, administrative overhead, and errors, thereby improving operational performance.

Similarly, the positive relationship with customer satisfaction supports the Technology Acceptance Model, which predicts that systems perceived as useful and easy to use improve client-facing outcomes. E-ordering enhances order accuracy, responsiveness, and reliability, translating into greater client confidence and satisfaction. The slightly stronger correlation with customer satisfaction compared to operational efficiency suggests that the benefits of e-ordering are more directly visible in client interactions than in internal efficiency metrics, possibly reflecting implementation priorities that emphasize customer-facing processes. Overall, the findings confirm that e-ordering is a significant driver of competitiveness in oil and gas firms in Rivers State, though its impact is moderate rather than overwhelming. This underscores that system deployment alone is insufficient; achieving stronger

competitive outcomes requires organizational integration, capability building, and strategic commitment to digital procurement transformation.

Study Implications

This study contributes theoretically by integrating the Technology Acceptance Model (TAM) and the Resource-Based View (RBV) into a unified framework for explaining e-ordering's competitive impact. The findings validate TAM's proposition that perceived usefulness drives adoption and performance, while also supporting RBV's view that competitive returns depend on complementary resources such as ICT infrastructure, skilled personnel, and organizational culture. By isolating e-ordering as an independent predictor of competitiveness, the study advances e-procurement literature and highlights that different dimensions of digital procurement (e-ordering, e-sourcing, e-tendering) exert distinct competitive effects, warranting separate theoretical treatment.

Managerially, the results confirm that e-ordering investments yield measurable returns in operational efficiency and customer satisfaction, justifying resource commitment to digital ordering platforms. However, the moderate strength of the relationships underscores that technology deployment alone is insufficient; firms must also invest in training, process redesign, ERP integration, and infrastructure to fully realize competitive benefits. The slightly stronger link with customer satisfaction suggests that managers should emphasize client-facing benefits of e-ordering, such as transparent tracking and real-time notifications, as part of relationship management strategies.

From a policy perspective, the findings highlight the need for government and regulatory interventions to address systemic barriers to e-ordering adoption in Nigeria's oil and gas sector. Infrastructure deficits, including unreliable internet, poor power supply, and weak ICT systems, limit the competitive returns of digital procurement. Policies that strengthen digital infrastructure, standardize supplier portals, and incentivize adoption will enhance the sector's ability to leverage e-ordering for sustained competitiveness.

Contribution to Knowledge

This study fills a specific gap in the Nigerian oil and gas e-procurement literature by isolating e-ordering as a distinct construct and quantifying its independent relationships with operational efficiency and customer satisfaction. Prior studies in the Rivers State context (Isoghom & Worgu, 2024; Onwuchekwa & Eyoh, 2024) have examined e-ordering within broader e-procurement frameworks; this study's focused, standalone analysis provides a more granular understanding of e-ordering's competitive mechanisms. The stratified sampling approach adopted in this study also enhances the representativeness of findings across firm-size categories, offering a methodological contribution to procurement research in heterogeneous industrial populations.

Conclusion

This study examined the relationship between e-ordering practices and the competitiveness of oil and gas firms in Rivers State, with competitiveness operationalized through operational efficiency and customer satisfaction. The empirical evidence confirms that e-ordering has a moderate but statistically significant positive relationship with both operational efficiency ($r = 0.563$, $p < 0.05$) and customer satisfaction ($r = 0.596$, $p < 0.05$). These findings, grounded in the Technology Acceptance Model and the

Resource-Based View, establish that digital ordering systems generate measurable competitive gains in the oil and gas sector, while also highlighting the moderating role of complementary organizational capabilities in determining the magnitude of these gains.

The study contributes to the empirical literature by isolating e-ordering as a distinct and significant predictor of competitive outcomes — a contribution that advances beyond prior studies which treat e-ordering as one of several bundled e-procurement dimensions. By focusing on the oil and gas sector in Rivers State within a stratified sample that captures firm-size heterogeneity, the study provides context-specific evidence that enriches the understanding of digital procurement's competitive implications in resource-intensive, technically complex industries within the Nigerian economy. The findings call for deliberate investment in integrated digital ordering systems alongside the complementary human and infrastructural capabilities required to unlock their full competitive value.

Recommendations and Suggestions for Future Research

The study recommends that oil and gas firms in Rivers State invest in advanced, fully integrated e-ordering platforms that connect procurement requisitions directly to supplier portals, inventory systems, and financial platforms, thereby reducing errors and accelerating procurement cycles. Integration with Enterprise Resource Planning (ERP) systems is particularly critical, as it synchronizes procurement data with production planning and financial reporting, amplifying competitive returns. Firms should also prioritize digital literacy and competency training for staff to ensure effective use of e-ordering systems, while establishing customer feedback mechanisms linked to procurement performance tracking to enhance responsiveness and satisfaction. At the policy level, government agencies and regulators are urged to support shared digital procurement infrastructure, standardized supplier portals, and secure interoperability frameworks to reduce adoption barriers, especially for smaller indigenous operators.

For future studies, researchers could explore comparative analyses of different e-procurement dimensions (e-ordering, e-sourcing, e-tendering) to better understand their distinct contributions to competitiveness. Longitudinal studies would be valuable in assessing how sustained investment in complementary resources such as ICT infrastructure and staff training influences the strength of e-ordering's impact over time. Cross-sectoral research beyond oil and gas could also provide insights into contextual differences in adoption outcomes, while qualitative case studies could deepen understanding of organizational culture and change management factors that moderate digital procurement effectiveness. Finally, examining the role of government policy interventions and industry-wide digital infrastructure development could shed light on systemic enablers of e-ordering adoption and competitiveness in resource-intensive industries.

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