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THE MODERATING ROLE OF ORGANIZATIONAL CULTURE ON THE RELATIONSHIP BETWEEN SUPPLY CHAIN DIGITALIZATION AND PROCUREMENT PERFORMANCE: A STUDY OF DOWNSTREAM OIL AND GAS COMPANIES IN RIVERS STATE

IKEGWURU, MAC-KINGSLEY
DEPARTMENT OF LOGISTICS AND SUPPLY CHAIN MANAGEMENT
RIVERS STATE UNIVERSITY
PORT HARCOURT
NENNAATON AKEKUE-ALEX,
DEPARTMENT OF MARKETING
RIVERS STATE UNIVERSITY
PORT HARCOURT

Abstract**:** *This study focused on moderating role of organization culture on the relationship between supply chain digitalization and procurement performance of downstream oil and gas companies in Rivers State. The study adopted the positivist stance of research philosophy, a quantitative approach, explanatory and causal relationship while controlling for the effects of unobserved firms' specific factors such as organizational culture. The population of the study was twenty-nine (29) downstream oil and gas companies in Port Harcourt and. the stepwise regression method was used for analysis. The study's findings revealed that, procurement performance is influenced by supply chain digitalization championed by a company. Research evidence also revealed that, organizational culture moderates the relationship between supply chain digitalization and procurement performance. The researchers therefore conclude that, organizational culture significantly moderates the relationship between supply chain digitalization and procurement performance of downstream oil and gas companies in Rivers State, and recommends that, the management of downstream oil and gas companies should ensure that supply chain digitalization awareness supports organizational culture. Hence, they should employ synergy and collaboration among supply chain partners, and this could enhance all aspects of the business to attain procurement performance.*

Key Words: *Downstream oil and gas companies, Organizational culture, Procurement performance, Supply chain digitalization.*

INTRODUCTION

For decade's procurement performance has been attracting great attention from practitioners, academicians and researchers due to poor levels of performance (Andrew, 2008). Poor procurement performance in the public procuring entities has been a problem due to lack of compliance to procurement regulations, lack of adherence to procurement procedures, lack of professionalism in undertaking procurement activities and lack of transparency in tendering process (Juma, 2010). Poor procurement performance is a major hindrance to procuring entities growth since it causes the delay of delivery, increase

of defects, delivery of low-quality goods or non-delivery at all (Gordon & Murray, 2009). Likewise Gunasekaran, (2013) pointed out that despite the fact that there are various studies that focus on procurement performance many procurement activities suffer from neglect, lack of direction, interference, poor co-ordination, lack of open competition and transparency, differing levels of corruption and most importantly not having a cadre of trained and qualified procurement specialists, who are competent to conduct and manage such procurements, in a professional, timely and cost effective manner in downstream oil and gas companies.

The downstream oil and gas sector contributes a significant role in generating foreign exchange earnings and overall revenue, which are crucial for the socio-economic and political development of Nigeria (Bediako et al., 2018). According to Yusuf (2015), oil is a significant factor in the implementation of Nigeria's fiscal and monetary policy. It is pertinent to know that Nigeria generated over US$390 billion in tax revenue from the oil industry, and in 2013 she had a Gross Domestic Product (GDP) of US $522.6 billion as Africa's largest economy (Sani & Nwoye, 2023). Thus, these companies that participate in crude oil trade, to secure a consistent and reliable source of oil for their respective industrial sectors and the public in general ought to embrace supply chain digitalization.

Supply chain digitalization in downstream oil and gas business becomes increasingly important in the current global business environment. In the last decade, firms have been exploring how to use emerging digital technologies, e.g., Internet of Things (IoT), big data analytics (BDA), and artificial intelligence (AI), in their production and supply chain management (SCM) (Addo-Tenkorang & Helo, 2016; Caputo *et al.,* 2016). Supply chain management includes the control, management and improvement of the flows of materials and information between the initial suppliers and end users through a network of connected organizations (Christopher 2016). These technologies are seen as promising means to improve supply chain functions, such as procurement, logistics, scheduling and planning (Arunachalam *et al.,* 2018). IoT has been extensively applied in factories and transportations to monitor the production process, and track and trace the logistics and warehouse operations (Hopkins & Hawking, 2018; Caro & Sadr, 2019). The real-time data collected from the IoT devices, combined with the data from other supply chain processes, has the potential to generate significant business value through the application of BDA and AI (Kache & Seuring, 2015). It could help firms better forecast customer demands, reveal the inventory problems, optimize resource allocation, and manage suppliers' relationships.

Further, these emerging digital technologies are not only changing the products and process, but also modifying value chains, renovating business models, and affecting the industrial structures (Ceipek *et al.,* 2020). There is a growing research interest in the adoption of supply chain digitalization in firms at a supply chain level (Hazen *et al.,* 2016). In general, existing studies have shown that supply chain digitalization can help firms improve their supply chain performance by enhancing efficiency (Govindan *et al.,* 2018; Yu et al., 2018), visibility (Arya *et al.,* 2017; Gunasekaran *et al.,* 2017; Kache & Seuring, 2017), resilience (da Silva *et al.,* 2018) and robustness (Brandon-Jones et al., 2014), as well as reduce supply chain risks (Buyukozkan & Goçer, 2018; Khan *et al.,* 2019) and supply uncertainties (Bag, 2017).

The digitalization of supply chains produces large volumes of data, which is regarded as a new kind of resource and has the potential to create value and enhance competitiveness. This could affect firms' business models and change the ways how firms create and capture value (D'Ippolito *et al.,* 2019; Chan *et al.,* 2018; Hanninen *et al.,* 2018). Research has also shown that supply chain digitalization has transformed the traditional ways of managing supply chains towards more data-driven approaches (Singh & ElKassar, 2019; Waller & Fawcett, 2013).

Firms are putting more focus on how to use supply chain data to predict market demand, provide predictive maintenance and optimize production and logistics (Arunachalam *et al.,* 2018). This requires a much higher level of data analytic skills and capabilities compared to the traditional SCM. However, the adoption of digital technologies does not always succeed (Correani *et al.,* 2020). The failure is often caused by the disconnection between the strategy formulation and implementation (Correani *et al.,* 2020). Inappropriate supply chain digitalization may result in disruptive change that leads to high risk and uncertainty during the transformation. This usually greatly shortens the supply chain, resulting in the potential risks to other players

within the supply chain as they also need to quickly adapt to this disruptive change. Again, supply chain digitalization is significantly affected by the technological, organizational and environmental factors (Yadegaridehkordi *et al.,* 2018). Therefore, before espousing supply chain digitalization, it is essential for firms to understand its purposes and assess these factors, analyze what might happen in the process and how each process might affect the supply chain.

Some scholarly enquiries have examined the supply chain digitalization /procurement performance interface and much of that work has concentrated on issues surrounding the implementation of supply chain digitalization in companies (Olofsson, Fransson & Lindberg, 2020; Herbst, 2021; Ikegwuru, 2022; Ikegwuru, & Ihunwo, (2023). Ikegwuru & Nwokah, 2022). From these studies, it is apparent that in the domains of Industry 4.0, a steady stream of research has examined the supply chain digitalization and procurement performance interface and much of that work has concentrated on issues surrounding the implementation of supply chain digitalization by companies. Besides, previous studies with respect to the moderating role of organizational culture on the relationship between supply chain digitalization and procurement performance in downstream oil and gas companies in Rivers State are scarce. It is on this premise that the current study submits that downstream oil and gas companies in Rivers State can improve their procurement performance, if they implement supply chain digitalization. Consequently, the quandary of this study was to investigate the moderating role of organizational culture on the relationship between supply chain digitalization and procurement performance of downstream oil and gas companies in Rivers State.

REVIEW OF RELATED LITERATURE

This section reviews related literature. The first part is done on the bases of theoretical foundation while the remaining part of the section considers the scholarly views on the major concepts of the study, supply chain digitalization, procurement performance and organizational.

Theoretical Foundation

The theoretical framework provides a grounding base, or an anchor, within which a study is domiciled. There are usually different types of theories related to studies, but for this study the resource dependency theory is adopted.

Resource Dependency Theory

Pfeffer and Salancik (1978) theorized through the resource dependency theory that, firms attempt to lessen defenselessness and superintend dependence by intentionally shaping their trade relationship, establishing official and semi-official association with other firms' (Mito, 2015). Resource Dependence theory contends that an association must have inside structures all around incorporated and facilitated through viable correspondence frameworks and adjusted to authoritative methodology. The supposition takes a glimpse at how the assets outside the association resolve interior responsibilities of the association which at last stimulates operational execution (Pfeffer & Salancik, 1978).

Resource Dependency Theory depends on the reservations that; organizations rely upon assets from different organizations for their internal activities (Gerald, 2014), the succeeding supposition that will be that the assets acquired from different associations are required by assets (cash). Third, the assets are rare and focused and, in this manner, require vital choices to be made about what to purchase, in what amount and at what times. In supposition, asset reliance is candidly allied to firm's capacity which is sensible, situational and shared for the hierarchical achievement. Through the created linkages and connections, firms can reduce awkwardnesses that come because of market elements, a premise can be linked in internal stock control.

As noted by Angel (2015), organizations can establish strategic, long-term relationships with providers and product users to ensure even and appropriate transportation of materials, and with extended haul provider client relationship, firms can sustain themselves from inner and outer hierarchical and ecological changes and achieve model stock control (Kitaeva, 2014). The resource dependency theory was adopted in this study to exemplify the suggestions by Pfeffer and Salancik (1978), and how resource dependency theory reflects a proper planning for supply chain digitalization activities in the organization for procurement performance.

The Concept of Supply Chain Digitalization

Supply chain digitalization as defined by Xue, Zhang, Ling and Zhao (2013) is inter-organizational systems (IOSs) that firms carry out to digitize the processes of transaction and collaboration with their supply chain partners (upstream suppliers and downstream customers). Bhargava et al. (2013) informs that supply chain digitalization is a grouping of systems that back communications and dealing procedures amongst global distribution organizations and the partners' activities in supply chains. This statement has also been reinforced by Cecere (2016). Supply chain digitalization enables businesses attend to her aspirations of delivering and supplying the right products at the right time. This process can be powered by means of digital technologies that connect to customer responsiveness. This is owing to the facility of smart products such as smart phones, tablet computer, handheld devices which can translate any electronic message essential by existing systems and consent to electronic data communication amongst firm and supply chain members.

Supply chain digitalization is built up of several core competencies required for balancing assorted production skills and join together multiple torrents of technologies. Supply chain digitalization is a result of prearranged set of competencies that sum up to proactive, relational, coordinative use of technology by a given supply chain who wishes to transport specific good and service offerings to realize sustainable competitiveness. Supply chain digitalization obliges businesses to reflect on the synchronization and the alliance of their supply chain as indispensable in their innovative strategies. Without a doubt, the administration of these upstream and downstream associates and of the entire supply chain prop up value formation for customers (Lavastre, Ageron & Chaze-Magnan, 2016). Additionally, lower computing costs, cheaper storage, and less expensive broadband that has been offered have powered the investment in digital technologies widely (Mussomeli, Gish & Laaper, 2015).

Thus, nowadays, people worldwide prefer to use digital tools and devices to communicate and interact with their relatives, friends, business associates and all. In fact, market forecast presents that a quarter of the world population currently connects to the internet, whereas half of these people are energetically on a social media platform (Bearing Point, 2015). Studies by Bughin et al. (2018) indicates that, many digital technologies such as Big Data, the Internet of Things, Blockchain, Cloud Computing systems, Artificial Intelligence, Man-Machine Learning and many more applications are instrumental to improving the supply chain of any industry. The above mentioned have been classified as digital supply chain (DSC) technologies supporting some companies to obtain a tremendous positive change in performance in more complicated areas. Tahiduzzaman (2017) further explained that DSC in supply chain management (SCM) is a supply chain constructed on an internet empowered competencies core. A DSC has a unique embedded system and techniques that governs and manages the real-time and assists to have first-rate customer interaction with items, plays the role of a location and equipment transport, and supports the planning process as well as implementing an inclusive company performance

The Concept of Procurement Performance

Procurement can be viewed as buying and taking possession of appropriate stocks of materials, parts and services at prices that are cost-effective at the optimum possible total cost in the correct amount and quality. This may imply timing the purchase so as the get the most competitive deal. Harland (2021) sees considers procurement as interconnected fraternization of levels of suppliers with an organization along the procurement chain. This chain connects the organization to its source of supplies. To obtain the maximum benefits from the process the various relationships must be managed. Procurement performance is defined in the literature as the purchase of materials competitively from the suppliers as well as to enjoy the benefits of bulk buying (Frodell, 2014). Under procurement performance, the purchasing department purchases the required materials for all the departments and branches of the company (Elanchezhian, 2010). According to Cole (2017), managing the entire procurement process brings about cordial buyer-supplier relationship. The configuration of relationships, the value/volume of transactions involved differ between organizations and between product or service. All these may tinker with the details of the procurement bringing some differences between companies and stakeholders.

Organizational Cu1ture-The Moderating Variable

The organizational culture structure was established by Denison and Spreitzer (1991) and based on Quinn and Rohrbaugh (1981), this structure centers on conflicts contained by a system, particularly the conflict between stability and change, and the conflict between the internal organization and the external environment. Copious definitions on organizational culture have been projected by a variety of intellectuals. For example, Schein (2010) defines organizational culture as the implicit shape over how the world is, and organization as a group of individuals who share opinions, thoughts, feelings and plain behaviors Zu, Robbins and Fredendall (2010) perceives organizational culture as the ethics or beliefs common to affiliates of an organization. This study sees organizational culture as a model of central norms learned or conventional recognized by a specified group as it gains knowledge of how to mix-up through with its problems of exterior adjustment and internal incorporation that has performed well adequately to be dignified pertinent and as a result to be taught to new members as the sanctioned mode to distinguish, picture and involved in relation to those problems. Organizational culture, therefore, plays a significant role in supply chain management (SCM) (Braunscheidel et al., 2010; Dowty& Wallace, 2010), and proper organizational culture coaxes the behavior of internal workforce in terms of information sharing, teamwork and risk taking (McCarter et al., 2005). Organizational culture in addition influence inter-firm performance in areas such as relationship skills and trust (Schilke & Cook, 2014).

Therefore, organizational culture-related skills are imperious for the realizations of supply chain integration (Fawcett et al., 2008; Whitfield & Landeros, 2006; McCarter et al., 2005). Given the enormousness of organizational culture for supply chain management, previous studies have systematically dissected the linkage between organizational culture and supply chain integration (Braunscheidel et al., 2010; Zu et al., 2010). A handful of these studies have engaged the competing value framework (CVF) proposed by Quinn and Rohrbaugh (1983) to embody organizational culture. The CVF encircles four dimensions, precisely, the development, group, hierarchical and rational culture dimensions. Inquiries based on the CVF establish the association between this range of dimensions of organizational culture and the different dimensions of supply chain integration (Braunscheidel et al., 2010; Zu et al., 2010). Previous literature on organizational culture and supply chain performance designates that organizational culture influence performance (Deal & Kennedy, 1997; Denison, 1990; O'Reilly III, 2017).

Organizational culture is distinguished as a potential determinant of supply chain integration effectiveness (Yunus & Tadisina, 2010). Based on the works of (Quinn & Cameron, 2011; Yunus & Tadisina (2010) conjecture that organizations with externally focused culture and an elastic coordination have a progressive degree of supply chain integration than those with other organizational qualities. Braunscheidel et al. (2010) investigated the effect of organizational culture, measured by the competing value framework (CVF) on two types of supply chain efforts: (i) internal integration and (ii) external integration with major suppliers and key customers, and found confirmation that a company's advocacy culture score is positively associated with

external integration, whiles a company's hierarchical culture score is negatively associated with both internal and external integration practices.

Organizational culture strategy emanates from the recognition of predilection of supply chain members to interact successfully This present study adopted organizational culture as the moderating variable on the relationship between supply chain digitalization and procurement performance of downstream oil and gas companies in Rivers State. From the above discussion, the study expects organizational culture to moderate the relationship between supply chain digitalization and procurement performance. Specifically, the study posits that the four traits of organizational culture (involvement, consistency, adaptability and mission) can individually affect the supply chain digitalization which will lead to the procurement performance of firms. Hence, when the support of an appropriate organizational culture is absent, firms may not achieve their objectives.

From the review of literature, the following conceptual framework and was designed:

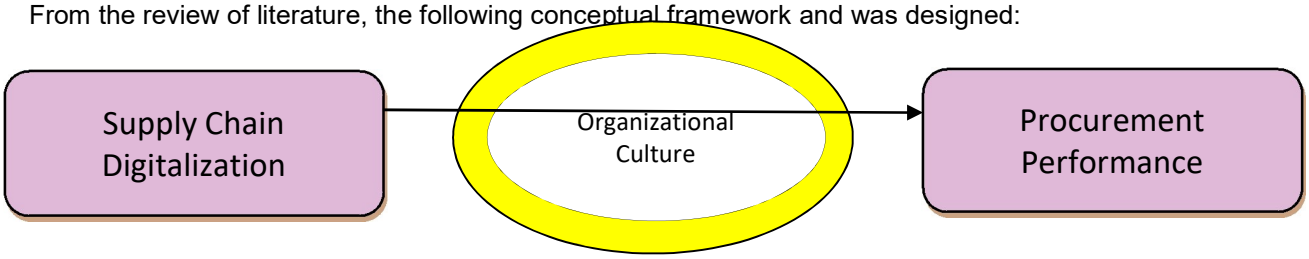

Figure 1: Conceptual framework of the moderating role of Organizational Culture on the relationship between Supply Chain Digitalization on Procurement Performance.

Source: Designed by the researchers, 2025.

METHODOLOGY

The study adopted the positivist stance of research philosophy and a. quantitative approach
Consistent with the main study objective which is to examine the of supply chain digitalization on procurement performance, the study adopted both explanatory and causal relationship while controlling for the effects of unobserved firms' specific factors such as organizational culture.
The population of this study comprised the twenty-nine (29) downstream oil and gas companies in Port Harcourt whose authentic list was derived from FinLib.com as at June 3, 2024. The study adopted the census method and considered the twenty-nine (29) downstream oil and gas companies as the sample size for the study. the stepwise regression method was used to test the moderating role of organizational culture on the relationship between supply chain digitalization and procurement performance.

Reliability of the Research Instrument

The Cronbach Alpha Reliability Coefficient was computed for each of the scales, and the results reported in Table 1.

Table 1: Test of Reliability

Scale	Dimension	Items	Reliability
SCD	Supply Chain Digitalization	3	0.933
PP	Procurement Performance	3	0.875
OC	Organizational Culture	3	0.859
QSCDPP	Composite	27	0.933

Source: SPSS output, 2025

Table 1 shows the reliability assessment of our predictor variables using Cronbach's alpha. It indicates how the items for each factor were internally related in the manner expected. As we can see, the value of the Alpha coefficient for the composite scale and each of the subscales are all above the threshold ($\alpha \geq 0.70$); hence, they are all reliable.

RESULTS

The Moderating role of Organizational Culture on the relationship between Supply Chain Digitalization and Procurement Performance

Test of Hypothesis 1

Ho_{10} Organizational culture does not significantly moderate the relationship between supply chain digitalization and procurement performance

As indicated beforehand, the independent variable, dependent variable and moderating variable defined in this work are supply chain digitalization and procurement performance and organizational culture The dependent variables is regressed on supply chain digitalization, organizational culture (OC) and the interaction variable (SCD*OC), and the results are described in Tables 2.

Table 2: Moderating role of Organizational Culture on the relationship between Supply Chain Digitalization and On Time Delivery (n=100)

1		2		3
Variable		**Beta Coefficient**		***p*-value**
Constant		-20.05734		0.0000
SCD		-0.136829		0.7919
OC		-2.115443		0.0000
SCD*OC		3.413479		0.0000
R-square	0.5255	Adj. R-squared	0.4824	Prob(F-statistic) 0.0000

Source: SPSS window output, 2025

Table 2 illustrates the multiple regression results for the moderating role of organizational culture on the relationship between supply chain digitalization and procurement performance based on regression model. As earlier specified in Chapter 3, the log of on procurement performance is a linear function of supply chain digitalization, organizational culture and the interaction variable. The interaction variable (SCD*OC) is the product of supply chain digitalization and organizational culture.

From Table 2, the F-statistic is associated with almost zero probability, indicating that overall, the projected procurement performance model is extremely significant. The Adjusted R-squared is 0.4824, signifying that the projected model has a moderate fit; the model explains about 48% of the total variation in procurement performance. Hence, factors not reflected in the model equally account for the remaining 52%.

As Table 2 further demonstrate, the projected coefficients have varied signs, with supply chain digitalization (= -0.1368) and OC (= -2.1154) are associated with negative signs. The interaction term (= 3.4134) is associated with positive coefficient. All variables are associated with zero probabilities except Supply chain digitalization whose probability is very high at 0.7919. This shows that organizational culture and the interaction variable are significant at 1% level, signifying that organizational culture moderates the relationships between supply chain digitalization and procurement performance.

DISCUSSIONS OF FINDINGS

Our finding shows a significant role of organizational culture on the relationship between procurement performance. When organizational culture is held constant, the liaison between them becomes strong and significant. Our finding shows that organizational culture moderates the relationship between supply chain digitalization and procurement performance. This implies that when downstream oil and gas companies noticed that the business terrain is becoming harsh for them to function; they introduce well-articulated supply chain digitalization to endear procurement performance. The findings of the analysis section of this study informs that the null hypothesis (Ho) was rejected, while the alternative hypothesis (H1) supports the theoretical rationale that associates the role of organizational culture on the relationship between supply chain digitalization and procurement performance. The relationship is statistically significant. Organizational culture can be a reason that facilitates competitiveness that will revolutionalize procurement performance absolutely.

The results of our study supports McCarter et al. (2005) assertion that, proper organizational culture coaxes the behavior of internal workforce in terms of information sharing, teamwork and risk taking, Schilke and Cook (2014) who found that, organizational culture influence inter-firm performance in areas such as relationship skills and trust, and Fawcett et al. (2008) who reveal that, organizational culture-related skills are imperious for the realizations of supply chain integration.

CONCLUSION

This work focused on investigating the moderating role of organizational culture on the relationship between supply chain digitalization and procurement performance of downstream oil and gas companies in Rivers State. The study's findings confirmed that procurement performance is influenced by supply chain digitalization championed by a company. Research evidence also revealed that, organizational culture significantly moderates relationship between supply chain digitalization and procurement performance. The study therefore concludes that, organizational culture significantly moderates the relationship between supply chain digitalization and procurement performance of downstream oil and gas companies in Rivers State. Therefore, in line with the observations and conclusions highlighted above, the researchers recommend that: the management of downstream oil and gas companies should ensure that supply chain digitalization awareness supports organizational culture. Hence, they should employ synergy and collaboration among supply chain partners, and this could enhance all aspects of the business to attain procurement performance.

REFERENCES

0Addo-Tenkorang, R., & Helo, P.T. (2016). Big data applications in operations/supply- chain management: A literature review. *Computers and Industrial Engineering, 101,* 528- 543.

Andrew, M. (2008). Procurement Reforms in Kenya, *Journal of Economics, 22*(1), 23-50.

Arunachalam, D., Kumar, N., & Kawalek, J.P. (2018). Understanding big data analytics capabilities in supply chain management: Unravelling the issues, challenges and implications for practice. Transportation Research Part E: *Logistics and Transportation Review, 114,* 416-436.

Arya, V., Sharma, P., Singh, A., & De Silva, P.T.M. (2017). An exploratory study on supply chain analytics applied to spare parts supply chain. *Benchmarking: An International Journal, 24* (6), 1571-1580.

Bearing Point. (2015). Annual Report 2015. Accessed October 2021. Available online at: https://www.bearingpoint.com/files/BearingPoint_Annual_Report_2015.pdf

Bediako E, B., IJ, O., & K.K., U. (2018). Economic Effects of Oil Price Volatility on Developing Countries: A Case Study of an Oil Exporting Country. *International Journal of Economics & Management Sciences, 07*(02).

Bhargava, B., Ranchal, R., & Ben Othmane, L. (2013). Secure information sharing in digital supply chains. Proceedings of the 2013 3rd IEEE International Advance Computing Conference, IACC 2013. https://doi.org/10.1109/IAdCC.2013.6514473

Braunscheidel, M.J., Suresh, N.C. &Boisnier, A.D. (2010). Investigating the impact of organizational culture on supply chain integration, *Human Resource Management, 49*(5), 883-911.

Bughin, J., Catlin, T., Hirt, M., & Willmott, P. (2018). Why digital strategies fail. McKinsey Quarterly.

Buyukozkan, G., & Goçer, F. (2018). Digital supply chain: Literature review and a proposed framework for future research. *Computers in Industry, 97*, 157-177

Caputo, A., Marzi, G., Pellegrini, M., & M, M. (2016). The internet of things in manufacturing innovation processes: development and application of a conceptual framework. *Business Process Management Journal, 22*(2), 383-402.

Caro, F., & Sadr, R. (2019). The Internet of Things (IoT) in retail: Bridging supply and demand. *Business Horizons, 62*(1), 47-54.

Ceipek, R., Hautz, J., Messeni Petruzzelli, A., De Massis, A., Matzelr, K. (2020). A motivation and ability perspective on engagement in emerging digital technologies: The case of Internet of Things solutions. Long Range Planning, in press.

Chan, H.K., Griffin, J., Lim, J.J., Zeng, F., & Chiu, A.S.F. (2018). The impact of 3D Printing Technology on the supply chain: Manufacturing and legal perspectives", *International Journal of Production Economics, 205,* 156-162.

FT Publishing International.

Cole, C. (2017). Value creation in e-business. *Strategic Management Journal, 22* (6-7), -520.

Correani A., De Massis, A., Frattini, F., Messeni Petruzzelli, A., & Natalicchio, A. (2020). Implementing a digital strategy: Learning from the experience of three digital transformation projects. *California Management Review, 62*, 37-56

Deal, T. & Kennedy, A. A. (1997). Corporate culture: Rites and rituals of organizational life. Retrieved from www.google.com.Accessed on 03/06/2024.

Denison, D. R. (1990). *Corporate culture and organizational effectiveness*. New York John Wiley Sons.

D'Ippolito, B., Messeni Petruzzelli, A., Panniello, U. (2019). Archetypes of incumbents' strategic responses to digital innovation. *Journal of Intellectual Capital, 20*, 662-679

Elanchezhian, C., Ramnath, B. V., & Kasavan, R. (2010). Supplier Selection using Fuzzy inference. *International Journal of Management Research and Technology, 4*(2), 113-132.

Fawcett, S.E., Magnan, G.M. & McCarter, M.W. (2008). Benefits, barriers, and bridges to effective supply chain management, *Supply Chain Management: An International Journal, 13*(1), 35-48.

Frodell, M. (2014). *Organization of Purchasing and Buyer-Supplier Relationships in Large Construction Companies (PHD).* Chalmers University of Technology, Goteborg, Sweden.

Govindan, K., Cheng, T.C.E., Mishra, N., & Shukla, N. (2018). Big data analytics and application for logistics and supply chain management. Retrieved from www.google.com. Accessed on February 14, 2024.

Gunasekaran, A. (2013). Benchmarking in public sector organizations. *Benchmarking: International Journal, 12*(4), 289-92.

Hanninen, M., Smedlund, A., & Mitronen, L. (2018). Digitalization in retailing: multi-sided platforms as drivers of industry transformation. *Baltic Journal of Management, 13*(2), 152–168.

Harland, K.W., & Claudia, K. (2021). *Environmental management policies, in Sarkis, (Eds), Green Manufacturing and Operations: from Design to Delivery and Back*, Greenleaf Publishing, Sheffield, 192-204.

Hazen, B.T., Skipper, J.B., Ezell, J.D., & Boone, C.A. (2016). Big Data and predictive analytics for supply chain sustainability: A theory-driven research agenda. *Computers & Industrial Engineering, 101*, 592–598.

Herbst, T. D. (2021). Component suppliers in the commodity battle: Can digital technology in multi-tier supply chains help to transform liabilities into opportunities? International *Journal of Business Science & Applied Management (IJBSAM), 16,* (2), 22-45.

Hopkins, J., & Hawking, P. (2018). Big Data Analytics and IoT in logistics: A case study, *International Journal of Logistics Management, 29* (2), 575-591.

Holmstrom, J., Holweg, M., Lawson, B., Pil, F.K., & Wagner, S.M. (2019). The digitalization of operations and supply chain management: Theoretical and methodological implications. *Journal of Operations Management, 65* (8),728-734.

Ikegwuru, M. (2022). Digital Supply chain technology proficiency and sustainable competitiveness of Oil and Gas Companies in Rivers State. *International Journal of Information, Engineering & Technology, 11*(7), 88-101.

Ikegwuru, M., & Ihunwo. E. (2023). Supply Chain Digitalization and Sustainable Competitiveness of Listed Oil and Gas Companies in Nigeria. *International Journal of Sustainable Development, 14*(3), 09 - 22

Ikegwuru, M., & Nwokah, N.G. (2022). Digital supply chain implementation and supply chain collaboration: A study of oil and gas companies in Rivers State. *International Journal of Information, Technology & Innovation in Africa 12*(4), 38-46.

Juma, M. J. O. (2012). Public Procurement Reforms. *Kenya Procurement Journal, 8*(2), 23-29.

Kache, F., & Seuring, S. (2017). Challenges and opportunities of digital information at the intersection of Big Data Analytics and supply chain management. *International Journal of Operations & Production Management, 37*(1),10–36.

Khan, S.A., Chaabane, A., & Dweiri, F. (2019). A knowledge-based system for overall supply chain performance evaluation: a multi-criteria decision-making approach. *Supply Chain Management: An International Journal, 24*(3), 377-396.

McCarter, M., Fawcett, S.E. &Magnan, G.M. (2005). The effect of people on the supply chain world: some overlooked issues, *Human Systems Management, 24*(3), 197- 208

Mussomeli, A., Gish, D., & Laaper, S. (2015). The Rise of the Digital Supply Chain: Industry 4.0 enables the digital transformation of supply chains.

Olofsson, A.D., Fransson, O., & Lindberg, J.O. (2020) A study of the use of digital technology and its conditions with a view to understanding what 'adequate digital competence' may mean in a national policy initiative, *Educational Studies, 46*(6), 727-743

Quinn, R.E. & Rohrbaugh, J. (1983). A spatial model of effectiveness criteria: towards a competing values approach to organizational analysis. *Management Science, 29*(3), 363-377.

Sani, S., & Nwoye, M. I. (2023). Effect of International Crude Oil Prices on Nigeria's Gross Domestic Product from (1985-2020). 11(01), 118–137.

Schein, E.H. (2010). *Organizational culture and leadership* (4th ed.). San Francisco: Jossey-Bass.

Schilke, O. & Cook, K.S. (2014). Sources of alliance partner trustworthiness: integrating calculative and relational perspectives, *Strategic Management Journal*, doi: 10.1002/smj.2208

Singh, S.K., & El-Kassar, A.N. (2019). Role of big data analytics in developing sustainable capabilities. *Journal of Cleaner Production, 213*, 1264-1273.

Tahiduzzaman, M., Rahman, M., Dey, S. K., Rahman, M. S., & Akash, S. M. (2017). Big data and its impact on digitized supply chain management. *IJRDO-Journal of Business Management, 3*(9), 196–208.

Xue, L., Zhang, C., Ling,H., & Zhao, X. (2013). Risk mitigation in supply chain digitization: system modularity and Information technology governance, *Journal of Management Information Systems, 30*, 325-352.

Yadegaridehkordi, E., Hourmand, M., Nilashi, M., Shuib, L., Ahani, A., & Ibrahim, O. (2018), "Influence of big data adoption on manufacturing companies' performance: An integrated DEMATEL-ANFIS approach. *Technological Forecasting and Social Change, 137,* 199–210

Yu, Z., Yan, H., & Edwin Cheng, T.C. (2001). Benefits of information sharing with supply chain partnerships. *Industrial Management & Data Systems, 101* (3),114 121.

Yunus, E. & Tadisina, S. K., (2010). Organizational culture context, supply chain integration and performance. POMS 21 St Annual Conference Vancouver, Canada, (618), 1-15.

Zu, X., Robbins, T.L. & Fredendall, L.D. (2010). Mapping the critical links between organizational culture and TQM/Six Sigma practices, *International Journal of Production Economics, 123*(1), 86-106.