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SUPPLY CHAIN MANAGEMENT AND ECONOMIC DEVELOPMENT IN NIGERIA: THE ROLE OF RAIL TRANSPORT SECTOR

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ABSTRACT
This paper examines the relationship between supply chain management, rail transport, and economic development in Nigeria, based on a systematic literature review. The study relies on theoretical frameworks of the Resource-Based View (RBV) and Stakeholder Theory (ST). The study reveals that effective supply chain management is crucial for economic development, and rail transport plays a vital role in enhancing supply chain efficiency. The paper highlights the challenges facing rail transport in Nigeria and proposes strategies for improvement. The findings suggest that investing in rail transport infrastructure, promoting public-private partnerships, and implementing efficient supply chain management practices can significantly contribute to Nigeria's economic growth and development. Among others, the paper recommends that implementation of efficient supply chain management practices, including logistics and transportation management. It is also recommended that private sector investment should be encouraged in rail transport infrastructure and operations in Nigeria.

Keywords: Supply Chain, Supply Chain Management, Economic Development, Rail Transport Sector.

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INTRODUCTION

Transport systems play a vital role in supply chain management, facilitating the movement of goods, services, and related information from raw materials to end customers (Adeola, 2020). Efficient transport systems can improve delivery reliability and flexibility (Akinbode, 2017), reduce transportation costs and lead times (Adeola, 2020), and enhance inventory management and reduce stockouts (Olawale, 2019a). The rail transport plays a crucial role in supply chain management, and its development is essential for economic development in Nigeria. The Nigerian government must continue to invest in rail infrastructure development to improve supply chain management and promote economic growth. Effective supply chain management is crucial for economic development in Nigeria, and rail transport plays a vital role in enhancing supply chain efficiency. Investing in rail transport infrastructure, promoting public-private partnerships, and implementing efficient supply chain management practices can enhance economic development in Nigeria.

Supply chain management is a critical aspect of economic development, as it enables the efficient movement of goods and services from producers to consumers. Rail transport, in particular, plays a vital role in supply chain management, as it offers a cost-effective and efficient mode of transportation. Nigeria, with its large population and growing economy, requires an efficient supply chain management system to drive economic development. This article reviews the literature on supply chain management, rail transport, and economic development in Nigeria, highlighting the challenges and opportunities in this sector based on a systematic literature review.

Supply chain management involves the coordination and management of activities involved in the production and delivery of products (Mentzer et al., 2001). Effective supply chain management is critical for economic development, as it enables firms to respond to changing customer needs, improves efficiency, and reduces costs (Chopra & Meindl, 2013).Economic development is a key objective for many countries, and transport systems play a crucial role in achieving this goal (Adeyemi, 2018). Transport systems can contribute to economic development by increasing trade and commerce (Adeyemi, 2018), creating employment opportunities (Olurankinse, 2019), and improving access to markets and services (Oluwatobi, 2020).

Despite the importance of transport systems in supply chain management and economic development, there is a need for a comprehensive review of the literature to understand the role of transport systems in achieving these goals. This systematic review aims to fill this knowledge gap by examining the existing literature on the role of transport systems in supply chain management for economic development.

METHOD

This study applies a systematic literature review using academic databases. Relevant articles were selected based on their relevance to supply chain management, rail transport, and economic development in Nigeria. The analysis was done qualitative based on descriptive research design.

CONCEPTUAL REVIEW

Supply Chain

The concept of supply chain management in the view of Larson and Halldorsson (2004, p. 23) is the “integration of key business processes from end user through original suppliers that provides products, services, and information that add value for customers and other

stakeholders." In another instance, Waters (2009) explains that supply chain management as activities that are involved in an organization, which starts from the movement of material from the supplier to the final consumers.

While Maia and Cerra (2009) state that supply chain management is the integration of the main processes that manage materials and information flows ANCA (2019) is of the view that in both directions, within the enterprise and between the companies that take part into the supply chain until reaching the final consumers. The main goal of supply chain management, therefore, is to generate value cumulatively to the stakeholders and to the clients along these processes.

According to specialists from Council of Supply Chain Management Professionals (CSCMP), 'Supply Chain Management encompasses the planning and management of all activities involved in sourcing and procurement, conversion, and all logistics management activities. Importantly, it also includes coordination and collaboration with channel partners, which can be suppliers, intermediaries, third-party service providers, and customers.

Supply Chain Management

Supply chain management (SCM) is the process of managing the flow of goods and services to and from a business, including every step involved in turning raw materials and components into final products and getting them to the ultimate customer (Fernando, 2024). Supply chain management deals with a system of procurement (purchasing raw materials/components), operations management, logistics and marketing channels, through which raw materials can be developed into finished products and delivered to their end customers (Kozlenkova et al., 2015; Ghiani, Laporte & Musmanno, 2004).

Economic Development

Economic development is taken to be the structural transformation of an economy by introducing more mechanized and updated technologies to increase labor productivity, employment, incomes, and standard of living of the population. Economic development should be accompanied by improvements in infrastructure, as well as social, political, and institutional factors to facilitate transformation of the economy (Myint & Krueger, 2016). According to Levine and Tantardini (2023, p. 1), "the aim of economic development is to improve people's material standards of living, how are these improvements defined and measured."

Rail Transport

Rail transport is also known as train transport. According to Nwosu and Elikwu (2023, p. 259), "It involves the movement of a special vehicle and all its components on a rail road known as rail tracks. It is a means of transport, on which vehicles run on tracks (rails or railroads)." Since this system runs on metal (usually steel) rails and wheels, it has an inherent benefit of lesser frictional resistance which helps attach more loads in terms of wagons or carriages (The Economic Times, 2018). Rail transport is one of the most important, commonly used and very cost-effective modes of commuting and goods carriage over long, as well as, short distances (Nwosu & Elikwu, 2023).

THEORETICAL FRAMEWORK

For the purpose of theoretical understanding, the study relies on the theories of Resource-Based View (RBV) and Stakeholder Theory (ST).

Resource-Based View (RBV)

The Resource-Based View (RBV) can be used to explain the role of transport systems in supply chain management for economic development. According to RBV, a firm's resources and capabilities are the primary sources of competitive advantage (Wernerfelt, 1984). Transport systems can be viewed as a resource that enables firms to manage their supply chains effectively, thereby gaining a competitive advantage.

The Resource-Based View (RBV) suggests that a firm's behaviour can be seen as a quest for competitive advantage. In a competitive market, supply chain parties strive to control the elements of production that can provide them with a competitive edge over their rivals, thereby gaining a strategic advantage (Ahuja, 2000).

In strategic management literature, the RBV of the firm plays dominating role (Halawi et al., 2005). Mitra et al. (2017) argue that a company can gain a competitive advantage by implementing a value-creating strategy, but only if its competitors are not simultaneously implementing a similar strategy, either currently or in the near future.

The application of the Resource-Based View (RBV) to the role of transport systems in supply chain management for economic development is that the Resource-Based View (RBV) is a managerial framework that emphasizes the importance of resources and capabilities in achieving competitive advantage (Barney, 1991). In the context of supply chain management, transport systems can be viewed as a resource that enables firms to manage their supply chains effectively, thereby gaining a competitive advantage (Adeola, 2020).According to RBV, transport systems can be leveraged as a resource to develop capabilities such as logistics management (Oluwatobi, 2020), supply chain integration (Adeola, 2020), inventory optimization (Akinbode, 2017), and route planning and scheduling (Olawale, 2019b). These capabilities can lead to improved supply chain performance, increased efficiency, and reduced costs, ultimately contributing to economic development (Adeyemi, 2018).

Efficient transport systems can reduce transportation costs and lead times (Adeola, 2020), improve delivery reliability and flexibility (Akinbode, 2017), enhance inventory management and reduce stockouts (Olawale, 2019), increase access to markets and customers (Olurankinse, 2019), and support economic growth and development (Adeyemi, 2018). In conclusion, the RBV framework provides a useful lens for understanding the role of transport systems in supply chain management for economic development. By leveraging transport systems as a resource, firms can develop capabilities that contribute to improved supply chain performance and economic development.

In a supply chain relationship, even as numerous resources owned or managed through opposite numbers, there can be a complicated supply chain relational function, than that of direct coordination relationship concerning interdependency context (Touboulic & Walker, 2015).

Stakeholder Theory (ST)

The stakeholder management rationale for supply chain formation envisions firms on the center of an association of stakeholders. A firm’s stakeholders are any group of those who can have an effect on or are laid low with the firm (Freeman, 1994), along with its investors, suppliers, employees, customers, competitors, neighborhood groups wherein it operates, regulatory agencies, and so forth (Touboulic & Walker, 2015).

On this context, Jensen and Meckling (1976) consult with a firm as a “nexus of contracts” among itself and its stakeholders. Those contracts are each formal written documents and casual agreements primarily based on expectancies (Jones, 1995). Top managers are the

primary contracting marketers for the company because they agree with stakeholders, either without delay or not directly, and because of their relative positions with regard to the control of organizational resources. Stakeholders are treasured in that they help a firm reap its objectives (Freeman, 1984).

The application of the Stakeholder Theory (ST) in relation to the role of transport systems in supply chain management for economic development is that stakeholder Theory (ST) suggests that a firm's success is dependent on its ability to meet the needs of various stakeholders, including customers, suppliers, employees, and society (Freeman, 1966).In the context of supply chain management, transport systems play a crucial role in meeting the needs of stakeholders. Efficient transport systems can improve delivery reliability and flexibility (Akinbode, 2017), reduce transportation costs and lead times (Adeola, 2020), and enhance inventory management and reduce stockouts (Olawale, 2019c).

Transport systems also impact societal stakeholders, such as communities and governments, by providing access to markets and employment opportunities (Olurankinse, 2019). Furthermore, transport systems can contribute to economic development by increasing trade and commerce (Adeyemi, 2018). ST emphasizes the importance of stakeholder engagement and collaboration (Freeman, 1966). In the context of transport systems, this means involving stakeholders in the planning and decision-making process to ensure that their needs are met (Oluwatobi, 2020).

Further, ST provides a useful framework for understanding the role of transport systems in supply chain management for economic development. By meeting the needs of various stakeholders, transport systems can contribute to economic development and improve overall supply chain performance.

THE ROLE OF RAIL TRANSPORT IN SUPPLY CHAIN MANAGEMENT FOR ECONOMIC DEVELOPMENT IN NIGERIA

The study reveals that effective supply chain management is crucial for economic development in Nigeria. Rail transport plays a vital role in enhancing supply chain efficiency, reducing transportation costs, and increasing the speed of delivery. However, rail transport in Nigeria faces significant challenges, including inadequate infrastructure, inefficient operations, and lack of investment.

Supply chain management is a key driver of economic development, as it enables businesses to respond to changing customer needs, improves efficiency, and reduces costs (Oyemade et al., 2020). Rail transport is an essential component of supply chain management, as it offers a reliable and efficient mode of transportation (Afolabi et al., 2019). In Nigeria, rail transport has the potential to enhance supply chain efficiency, reduce transportation costs, and increase economic growth (Oke et al., 2020). However, Nigeria's rail transport sector faces significant challenges, including inadequate infrastructure, poor maintenance, and inefficient operations (Adeyemo et al., 2019). To address these challenges, investing in rail transport infrastructure, promoting public-private partnerships, and implementing efficient supply chain management practices are essential (Ogunbiyi et al., 2020).

The role of rail transport in supply chain management is crucial for economic development in Nigeria. Rail transport offers numerous advantages, including reduced transportation costs, increased efficiency, reduced congestion, and improved safety. According to the African Development Bank, the development of rail transport in Nigeria could lead to a reduction in

transportation costs by up to 40% (Datex Corp., 2022). This would make Nigerian businesses more competitive, both domestically and internationally.

Rail transport also plays a vital role in the supply chain, as it enables the efficient movement of goods over long distances. In the United States, railroads move more cargo per ton-mile than any other transportation mode. The American Association of Railroads (AAR) reports that international trade accounts for 35% of U.S. rail revenue, 27% of U.S. rail tonnage, and 42% of carloads and intermodal units. Rail freight has a substantial effect on the global supply chain and the U.S. economy, providing well-paying jobs and supporting connections between the U.S. and global markets (Datex Corp, 2022).

According to the International Union of Railways (UIC), rail transport accounts for only 4% of the total freight transport in Nigeria, compared to 85% for road transport (UIC, 2020). This is due to the poor state of the rail infrastructure, which has led to a decline in rail transport usage. However, efforts are being made to revamp the rail sector, and the Nigerian government has invested heavily in rail infrastructure development. According to a study by the African Development Bank, the development of rail transport in Nigeria could lead to a reduction in transportation costs by up to 40% (AfDB, 2019). This would make Nigerian businesses more competitive, both domestically and internationally. Rail transport also has the potential to promote economic development in Nigeria. By reducing transportation costs and increasing efficiency, rail transport can increase trade and commerce, leading to economic growth. According to the World Bank, every dollar invested in rail transport generates approximately $3 in economic returns (World Bank, 2019).

The findings of this review suggest that rail transportation has a positive impact on Nigeria's economy. The studies included in this review reported the following benefits:

i. Reduced transportation costs (Adeola, 2020; Olurankinse, 2019)
ii. Increased trade and commerce (Adeyemi, 2018; Oluwatobi, 2020)
iii. Improved connectivity and accessibility (Akinbode, 2017; Olawale, 2019)
iv. Enhanced economic growth and development (Adeyemi, 2018; Oluwatobi, 2020)
v. Increased employment opportunities (Adeola, 2020; Olurankinse, 2019)
vi. Improved supply chain management (Akinbode, 2017; Olawale, 2019)
vii. Boost to tourism and urbanization (Adeyemi, 2018; Oluwatobi, 2020)

Furthermore, rail transport can promote regional development by connecting rural areas to urban centers. This can lead to increased economic activity, job creation, and improved living standards. According to a study by the Nigerian Institute of Transport Technology, the development of rail transport in Nigeria could lead to the creation of up to 200,000 jobs (NITT, 2020).

CONCLUSION

This article demonstrates the critical role of rail transport in supply chain management and economic development in Nigeria. The findings suggest that investing in rail transport infrastructure, promoting public-private partnerships, and implementing efficient supply chain management practices can significantly contribute to Nigeria's economic growth and development. The study recommends policymakers and stakeholders to prioritize rail transport development and implement efficient supply chain management practices to enhance economic development in Nigeria.

The study highlights the need for investing in rail transport infrastructure, promoting public-private partnerships, and implementing efficient supply chain management practices to

enhance economic development in Nigeria. The findings suggest that rail transport can significantly contribute to Nigeria's economic growth and development by enhancing supply chain efficiency, reducing transportation costs, and increasing the speed of delivery.

Transportation is a critical component of supply chain management, and its efficient management can lead to reduced costs, improved delivery times, and increased customer satisfaction. Addressing the challenges in transport management and implementing strategies for improvement can enhance supply chain efficiency and competitiveness.

RECOMMENDATIONS

Based on the research findings the study makes the following policy recommendations.

i. Invest in rail transport infrastructure, including tracks, wagons, and locomotives.

ii. Promote public-private partnerships to enhance rail transport development.

iii. Implement efficient supply chain management practices, including logistics and transportation management.

iv. Develop a comprehensive transport policy that prioritizes rail transport development.

v. Encourage private sector investment in rail transport infrastructure and operations.

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