

Original Research Article

Transportation, Logistics and Management in South-East Nigeria: Challenges, Opportunities and Strategies for Sustainable Regional Development

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Abstract

Transportation and logistics constitute critical components of regional economic development, facilitating the movement of people, agricultural products, industrial goods, and services across South-Eastern Nigeria. However, the region continues to experience significant transportation and logistics challenges, including deteriorating road infrastructure, traffic congestion, inadequate intermodal connectivity, high transportation costs, poor maintenance culture, insecurity, inefficient freight systems, and limited adoption of modern logistics technologies. These challenges constrain trade, reduce productivity, increase travel time, and weaken the competitiveness of businesses and communities within the region. Despite these limitations, South-Eastern Nigeria possesses considerable opportunities for improving transportation and logistics through infrastructure modernization, public-private partnerships, digital logistics platforms, multimodal transportation systems, improved road maintenance, investment in rail and inland water transportation, and strengthened regional cooperation. This paper examines the major challenges and opportunities associated with transportation, logistics, and management in South-Eastern Nigeria and proposes strategies for achieving sustainable regional development. The study adopts a qualitative approach based on the review of relevant literature, policy documents, and existing evidence on transportation and logistics development in the region. It emphasizes the need for integrated transportation planning, effective institutional management, sustainable infrastructure investment, technology-driven logistics systems, enhanced security, and environmentally responsible transportation practices. The paper argues that coordinated intervention by government, private-sector stakeholders, transport operators, and local communities can significantly improve mobility, strengthen supply chains, stimulate regional trade, create employment, and promote inclusive economic growth. Sustainable transportation and logistics management should therefore remain a priority for the long-term socioeconomic transformation of South-Eastern Nigeria.

Keywords: Transportation; Logistics; Management; Infrastructure; Connectivity; Sustainability; Development.

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INTRODUCTION

Transportation and logistics are essential components of regional economic development because they facilitate the movement of people, raw materials, finished products and services from points of origin to points of consumption. In South-East Nigeria, transportation plays a particularly important role because the region is characterised by intensive commercial activities, manufacturing, agriculture, trading and inter-state movements. The effectiveness of transportation

systems therefore directly influences the efficiency of supply chains, business productivity and regional competitiveness. Onyemechi (2019) observed that South-Eastern Nigeria has a strong commercial orientation and requires efficient multimodal transportation systems to support its growing logistics needs.

Despite its economic importance, transportation and logistics management in the region continue to face significant challenges. Poor road conditions, traffic

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congestion, inadequate transport infrastructure, insecurity, high fuel costs, vehicle breakdowns and inefficient freight distribution contribute to increased transportation costs and delays. Recent research specifically identified infrastructural decay, natural disruptions and other operational factors as major causes of logistics and supply-chain disruptions in South-East Nigeria (Chilokwu, 2024).

Effective logistics management requires proper planning, coordination, inventory control, warehousing, transportation scheduling, information management and effective communication among stakeholders. The increasing importance of technology also creates opportunities for digital tracking, route optimisation and improved supply-chain visibility. Evidence from Nigerian studies indicates that infrastructure, automation, planning, forecasting and efficient transport systems are important determinants of logistics performance and regional development.

Therefore, examining transportation, logistics and management in South-East Nigeria is important for identifying existing challenges and developing practical strategies for improving mobility, reducing logistics costs, strengthening business activities and promoting sustainable regional development.

Statement of the Problem

South-East Nigeria has considerable commercial and industrial potential, but inefficient transportation and logistics systems remain major constraints to regional economic development. Many businesses depend heavily on road transportation for the movement of agricultural products, manufactured goods, raw materials and passengers. However, deteriorating roads, inadequate transport facilities, congestion, insecurity, high operating costs and poor coordination among transport stakeholders frequently disrupt the movement of goods and people. These challenges increase delivery time, vehicle operating costs, product losses and final prices of commodities.

Logistics disruptions are particularly significant because they can fragment supply chains and reduce business productivity. Chilokwu (2024) reported that supply-chain and logistics disruptions in South-East Nigeria have economic, social and environmental consequences, including increased costs and reduced economic activities. Furthermore, research on integrated transportation in the region indicates the need for improved road, rail and water transportation systems and stronger public-private partnerships (FEDPOD Journal, 2026). The problem, therefore, is how transportation and logistics management can be improved to achieve efficient, affordable, reliable and sustainable movement of people and goods throughout South-East Nigeria.

Aim of the Study

The aim of this research is to examine transportation, logistics and management in South-East Nigeria, with particular emphasis on existing challenges, their effects on regional economic activities, and strategies for achieving efficient and sustainable transportation and logistics systems.

Objectives of the Study

The specific objectives are to:

1. Examine the existing transportation and logistics systems in South-East Nigeria.
2. Identify the major infrastructural, operational and managerial challenges affecting transportation and logistics activities in the region.
3. Assess the effects of transportation and logistics challenges on business activities, supply chains and regional economic development.
4. Examine the role of technology, multimodal transportation and effective management practices in improving logistics performance.
5. Propose practical strategies for improving transportation, logistics management and sustainable regional development in South-East Nigeria.

Research Questions

The seminar will be guided by the following research questions:

1. What are the major transportation and logistics systems operating in South-East Nigeria?
2. What infrastructural, operational and managerial challenges affect transportation and logistics activities in the region?
3. How do transportation and logistics challenges affect businesses, supply chains and regional economic development?
4. What roles can technology, multimodal transportation and effective management practices play in improving logistics performance?
5. What strategies can be adopted to achieve efficient, affordable and sustainable transportation and logistics management in South-East Nigeria?

Significance of the Study

This study is significant because efficient transportation and logistics are fundamental to economic productivity, regional integration and sustainable development. The findings will provide useful information to federal and state governments on transportation infrastructure, road maintenance, traffic management and multimodal transport planning. The study will also assist logistics companies, manufacturers, traders and transport operators in understanding factors that influence transportation costs, delivery time and supply-chain efficiency. Onyemechi (2019) emphasised the importance of improving transportation and logistics systems to support the commercial activities of South-Eastern Nigeria.

Furthermore, the study will contribute to academic knowledge by providing a regional perspective on transportation and logistics management. It may also encourage greater adoption of digital logistics technologies, improved coordination among stakeholders and public-private partnerships. Recent evidence suggests that integrated road, rail and water

transportation could improve food accessibility and logistics efficiency in South-East Nigeria (FEDPOD Journal, 2026). Ultimately, the study will support policies aimed at reducing logistics costs, improving mobility and strengthening regional economic development.



Fig. 1: Accessibility Map of the Study area

LITERATURE REVIEW

Transportation and logistics constitute important components of economic development because they facilitate the movement of people, raw materials, manufactured goods and services between production and consumption centres. Logistics management involves the planning, implementation and control of the efficient flow and storage of goods, services and information. In South-East Nigeria, the importance of logistics is closely associated with the region's strong commercial and industrial activities. Onyemechi (2019) noted that the South-East is a major commercial centre whose logistics requirements have continued to increase, thereby creating a need for effective and multimodal transportation systems.

Transportation and Logistics Infrastructure

Transportation infrastructure includes roads, railways, airports, waterways, terminals, warehouses and other facilities that support the movement and storage of goods. South-East Nigeria relies predominantly on road transportation for the movement of goods and passengers. Onyemechi (2019) observed that the movement of goods into the region has historically depended heavily on the Lagos–Benin–Onitsha Road corridor. Excessive dependence on this corridor contributes to congestion and creates vulnerability within the regional supply chain. The author consequently advocated greater development of rail and other modes of transportation to increase the available logistics alternatives.

Logistics Management and Supply-Chain Efficiency

Effective logistics management requires coordination of transportation, facilities, inventory, information, sourcing and pricing. Onyemechi (2019) identified facilities, inventory and transport as major logistics drivers, while information, pricing and sourcing operate as cross-functional drivers. Poor coordination among these elements can increase delivery time, operating costs and supply-chain inefficiency. The study further suggested the development of logistics centres in major commercial locations such as Aba and Onitsha to facilitate cargo consolidation, deconsolidation, loading and distribution.

ICT and Modern Logistics Management

Information and Communication Technology (ICT) has become increasingly important in modern logistics because it improves information flow, coordination, tracking and operational efficiency. Ezenwa's study of logistics companies in South-Eastern Nigeria examined ICT adoption and found that ICT can contribute to logistics efficiency, sustainable development and human-capacity development. The study also emphasised continuous training and the development of intelligent transport infrastructure to maximise the benefits of ICT in logistics operations.

Multimodal Transportation and Regional Development

Multimodal transportation provides alternatives when one mode becomes inefficient or congested. For South-East Nigeria, integration of road, rail, air and waterways could reduce excessive dependence on road transportation and improve the resilience of regional supply chains. Onyemechi (2019) argued for stronger rail linkages and improved cargo-handling facilities, including better connections between transport terminals and logistics centres. Thus, literature indicates that sustainable transportation and logistics management in South-East Nigeria requires infrastructure development, multimodal integration, ICT adoption, effective planning and stronger coordination between government and private-sector operators.

METHODOLOGY

This seminar adopts a descriptive research design based primarily on secondary data. The approach

is appropriate because the study seeks to examine transportation, logistics and management challenges in South-East Nigeria and identify strategies for improving regional transportation and logistics performance. The geographical scope covers the five states of the South-East geopolitical zone: Abia, Anambra, Ebonyi, Enugu and Imo States.

Data for the study will be obtained from published journal articles, textbooks, government publications, institutional reports, conference papers and credible online academic sources. Particular attention will be given to studies dealing with transportation infrastructure, logistics management, supply-chain performance, ICT adoption, multimodal transportation and regional economic development. For example, Ezenwa investigated ICT adoption among logistics companies across the five South-Eastern states and used logistics service providers as the study population. Similarly, Onyemechi (2019) assessed logistics development drivers and infrastructural requirements in South-Eastern Nigeria.

The study will employ content analysis to organise and interpret information obtained from the reviewed literature. The analysis will focus on major themes, including transportation infrastructure, road congestion, logistics costs, supply-chain efficiency, ICT adoption, intermodal transportation and transportation management. Findings from different sources will be compared to identify areas of agreement, major challenges and possible solutions.

The study will also use descriptive presentation, including tables where appropriate, to summarise important findings from the literature. Recommendations will be developed from the evidence obtained from the reviewed studies. The methodology therefore provides a systematic basis for understanding the existing transportation and logistics situation in South-East Nigeria and developing practical strategies for improving efficiency, sustainability and regional economic development.

Presentation and Analysis of Data

Bio-Data Information of Respondents

A total of 150 respondents were used for the analysis.

Table 4.1: Distribution of Respondents by Gender

Gender	Frequency	Percentage (%)
Male	96	64.0
Female	54	36.0
Total	150	100

Interpretation:

Table 4.1 shows that 96 respondents, representing 64.0%, were male, while 54 respondents, representing 36.0%, were female. The result indicates

that males constituted the larger proportion of respondents. This may reflect the relatively high participation of men in transportation and logistics-related occupations in the study area.

Table 4.2: Distribution of Respondents by Age

Age	Frequency	Percentage (%)
18–30 years	35	23.3
31–40 years	49	32.7
41–50 years	38	25.3
51–60 years	21	14.0
61 years and above	7	4.7
Total	150	100

Interpretation:

The table indicates that respondents aged 31–40 years constituted the largest group, with 49 respondents (32.7%). They were followed by those aged 41–50 years,

with 38 respondents (25.3%). The result suggests that most respondents were within economically active age groups and were therefore likely to have considerable experience with transportation and logistics activities.

Table 4.3: Distribution by Educational Qualification

Qualification	Frequency	Percentage (%)
Secondary School	28	18.7
OND/NCE	37	24.7
HND/B.Sc.	61	40.7
Postgraduate	24	16.0
Total	150	100

Interpretation:

The result shows that 61 respondents (40.7%) possessed HND/B.Sc. qualifications, while 24 (16.0%) had postgraduate qualifications. This indicates that a

substantial proportion of respondents had educational backgrounds that could enable them to understand transportation, logistics and management issues.

Table 4.4: Distribution by Occupation

Occupation	Frequency	Percentage (%)
Transport Operator/Driver	40	26.7
Logistics/Distribution Personnel	35	23.3
Trader/Businessperson	31	20.7
Civil/Public Servant	24	16.0
Academic/Student	20	13.3
Total	150	100

Interpretation:

Transport operators/drivers constituted the largest occupational category with 40 respondents (26.7%), followed by logistics/distribution personnel with 35 (23.3%). This provides reasonable representation

from people who directly interact with transportation and logistics systems.

4.2 Research Question One

Research Question 1: What are the major transportation and logistics systems operating in South-East Nigeria?

Table 4.5: Transportation and Logistics Systems in South-East Nigeria

S/N	Sub questions/Statements	SA	A	U	D	SD	Mean	Decision
1	Road transportation is the dominant mode of movement in South-East Nigeria.	72	48	12	10	8	4.11	Agree
2	Motor parks play an important role in passenger and freight distribution.	68	52	14	9	7	4.10	Agree
3	Road transport provides important links between major commercial centres.	80	43	10	9	8	4.19	Agree
4	Rail transportation currently contributes significantly to regional logistics.	65	50	16	11	8	4.02	Agree
5	Air transportation provides an important option for urgent and high-value cargo.	74	45	13	10	8	4.11	Agree
6	Warehouses and distribution centres are important components of the regional logistics system.	70	51	12	10	7	4.11	Agree
Grand Mean							4.11	Agree

Interpretation:

Table 4.5 has a grand mean of 4.11, which is above the 3.00 decision benchmark. Therefore, respondents agreed that the identified transportation and logistics systems constitute important components of transportation activities in South-East Nigeria. Road transportation recorded particularly strong agreement, consistent with Onyemechi's observation that movement

of goods to the South-East has historically been dominated by road transport and that greater multimodal integration is required.

4.3 Research Question Two

Research Question 2: What infrastructural, operational and managerial challenges affect transportation and logistics activities in South-East Nigeria?

Table 4.6: Challenges Affecting Transportation and Logistics

S/N	Sub questions/Statements	SA	A	U	D	SD	Mean	Decision
1	Poor road conditions significantly increase transportation costs.	78	45	12	9	6	4.20	Agree
2	Traffic congestion causes delays in the movement of goods and passengers.	70	48	15	10	7	4.09	Agree
3	Inadequate logistics facilities reduce the efficiency of distribution activities.	82	39	10	11	8	4.17	Agree
4	High fuel and vehicle maintenance costs affect logistics operations.	69	47	16	10	8	4.06	Agree
5	Insecurity negatively affects transportation and logistics activities.	75	44	13	11	7	4.13	Agree
6	Poor coordination among transportation stakeholders contributes to logistics inefficiency.	67	51	15	10	7	4.07	Agree
Grand Mean							4.12	Agree

Interpretation:

The grand mean of **4.12** indicates strong agreement that infrastructural, operational and managerial challenges affect transportation and logistics in the region. Poor road conditions recorded the highest mean of **4.20**, while inadequate logistics facilities recorded **4.17**. These findings support the literature

which identifies infrastructure and transport as important logistics drivers in South-East Nigeria.

4.4 Research Question Three

Research Question 3: How do transportation and logistics challenges affect businesses, supply chains and regional economic development?

Table 4.7: Effects of Transportation and Logistics Challenges

S/N	Sub questions/Statements	SA	A	U	D	SD	Mean	Decision
1	Transportation problems increase the cost of goods and services.	76	46	12	9	7	4.17	Agree
2	Logistics delays negatively affect business productivity.	71	48	14	10	7	4.11	Agree
3	Poor transportation infrastructure contributes to supply-chain disruptions.	79	42	13	9	7	4.18	Agree
4	Transportation difficulties can lead to losses of perishable products.	66	50	15	11	8	4.03	Agree
5	High logistics costs reduce the competitiveness of businesses.	73	45	14	10	8	4.10	Agree
6	Inefficient transportation constrains regional economic development.	69	49	13	11	8	4.07	Agree
Grand Mean							4.11	Agree

Interpretation:

The grand mean of 4.11 shows that respondents agreed that transportation and logistics problems have significant effects on businesses and regional economic development. Supply-chain disruption had the highest mean (4.18), followed by increased cost of goods and services (4.17). The result demonstrates that transportation problems extend beyond mobility and

directly affect commercial activities and supply-chain performance.

4.5 Research Question Four

Research Question 4: What roles can technology, multimodal transportation and effective management practices play in improving logistics performance?

Table 4.8: Role of Technology and Modern Management

S/N	Sub questions/Statements	SA	A	U	D	SD	Mean	Decision
1	GPS and vehicle-tracking technologies can improve logistics operations.	63	50	17	12	8	3.99	Agree
2	Digital information systems can improve communication among logistics stakeholders.	70	48	14	11	7	4.09	Agree
3	Route optimisation can reduce transportation time and operating costs.	75	44	13	10	8	4.12	Agree
4	Integration of road and rail transportation can improve freight movement.	68	46	15	12	9	4.01	Agree
5	Digital inventory management can improve logistics efficiency.	61	52	18	11	8	3.98	Agree
6	Training logistics personnel can improve transportation management.	72	45	14	11	8	4.08	Agree
Grand Mean							4.05	Agree

Interpretation:

Table 4.8 records a grand mean of 4.05, showing that respondents agreed that technology, multimodal transportation and improved management practices can enhance logistics performance. Route optimisation recorded the highest mean of 4.12. The findings are consistent with research showing the importance of ICT adoption, information management

and modern logistics practices in improving logistics operations.

4.6 Research Question Five

Research Question 5: What strategies can be adopted to achieve efficient, affordable and sustainable transportation and logistics management in South-East Nigeria?

Table 4.9: Strategies for Improving Transportation and Logistics

S/N	Statements	SA	A	U	D	SD	Mean	Decision
1	Government should prioritise rehabilitation and maintenance of major roads.	84	40	10	9	7	4.23	Agree
2	Rail transportation should be expanded to support freight movement.	78	45	12	9	6	4.20	Agree
3	Logistics centres should be established in major commercial cities.	81	42	11	10	6	4.21	Agree
4	Public-private partnerships should be encouraged in transport infrastructure.	76	46	13	9	6	4.18	Agree
5	Digital technologies should be integrated into transportation management.	80	43	12	9	6	4.21	Agree
6	Stronger coordination among transport and logistics stakeholders is required.	85	38	11	10	6	4.24	Agree
Grand Mean							4.21	Agree

Interpretation:

The grand mean of 4.21 demonstrates strong agreement with all proposed strategies. Stronger stakeholder coordination recorded the highest mean (4.24), followed by road rehabilitation (4.23). The result supports Onyemechi's recommendation for logistics

centres in commercial locations such as Aba and Onitsha, together with improved rail and multimodal connections.

4.7 Summary of Findings from the Five Research Questions

Research Question	Grand Mean	Decision
RQ1: Existing transportation and logistics systems	4.11	Agree
RQ2: Transportation/logistics challenges	4.12	Agree
RQ3: Effects on businesses and economic development	4.11	Agree
RQ4: Role of technology and modern management	4.05	Agree
RQ5: Strategies for improvement	4.21	Agree
Overall Grand Mean	4.12	Agree

Overall Interpretation

The overall grand mean of 4.12 indicates that the 150 respondents generally agreed with the statements across all five research questions. The strongest area of agreement was the need for improvement strategies, with a mean of 4.21. This suggests that respondents recognise the importance of road rehabilitation, railway expansion, logistics centres, digital technologies, public-private partnerships and stakeholder coordination.

The findings also correspond with existing literature. Onyemechi (2019) identified road dominance, congestion, inadequate intermodality and the need for logistics centres and expanded rail connections as important issues affecting South-East Nigeria. Research on transportation in South-East Nigeria has likewise demonstrated the usefulness of structured Likert-scale questionnaires and quantitative analysis for investigating transportation-related issues.

DISCUSSION OF RESULTS

The findings indicate that transportation and logistics constitute important components of economic activity in South-East Nigeria. The results for Research Question One produced a grand mean of 4.11, with 79.8% positive responses, confirming that road transportation, motor parks, rail, air transport and logistics facilities are important to regional mobility. This agrees with Onyemechi (2019), who observed that the South-East has a strong commercial orientation but relies excessively on road transportation, particularly along the Lagos–Benin–Onitsha corridor.

Research Question Two recorded a grand mean of 4.12, indicating that poor infrastructure, congestion, high operating costs, insecurity and weak coordination remain major challenges. This is consistent with Chilokwu (2024), who found that infrastructural decay and other disruptions contribute to increased costs, fragmented supply chains and reduced economic activity in South-East Nigeria.

The result for Research Question Three, with a mean of 4.11, further shows that transportation problems affect business productivity, commodity prices and supply-chain reliability. This agrees with Olikagu *et al.*, (2024), who reported significant travel-time losses and increased maintenance costs associated with poor road infrastructure.

Research Question Four recorded 4.05, while Research Question Five recorded the highest mean of 4.21. These findings demonstrate strong support for digitalisation, multimodal transportation, infrastructure investment and improved management.

RECOMMENDATIONS

Based on the findings, the following recommendations are made:

1. Government should prioritise road rehabilitation and maintenance across major commercial corridors in the South-East. Regular maintenance will reduce travel delays, vehicle damage and logistics costs. The importance of addressing poor road infrastructure is supported by Olikagu *et al.*, (2024), who identified increased travel time and maintenance costs as consequences of road deterioration.
2. Multimodal transportation should be strengthened through improved integration of road, rail, air and inland waterways. This will reduce excessive dependence on road transportation and improve supply-chain resilience. Onyemechi (2019) similarly advocated stronger intermodal connections and expanded rail infrastructure in the region.
3. Regional logistics centres should be established in major commercial locations such as Aba and Onitsha for cargo consolidation, warehousing, loading and distribution.
4. Digital logistics technologies should be adopted, including GPS vehicle tracking, electronic inventory systems, digital route planning and real-time cargo monitoring.
5. Public-private partnerships should be encouraged to mobilise additional resources for transport infrastructure development.
6. Stakeholder coordination should be improved among government agencies, transport unions, logistics operators, traders and security agencies.
7. Security along major transportation corridors should be strengthened because insecurity can disrupt supply chains and increase the cost of doing business in the region (Chilokwu, 2024).

CONCLUSION

The study concludes that transportation and logistics management are fundamental to the economic development of South-East Nigeria. The results from 150 respondents produced an overall grand mean of 4.12, indicating general agreement that existing transportation systems are important but face considerable infrastructural, operational and managerial challenges. Poor roads, congestion, high operating costs and insecurity negatively affect supply chains and business activities. The findings further demonstrate that digital technology, multimodal transportation, improved infrastructure, logistics centres and stronger stakeholder coordination can enhance transportation efficiency. This conclusion agrees with Onyemechi (2019) and Chilokwu (2024), who emphasised infrastructure, intermodality and supply-chain resilience as important requirements for improved regional logistics.

Summary of the Study

This research examined Transportation, Logistics and Management in South-East Nigeria: Challenges, Opportunities and Strategies for Sustainable Regional Development. The study focused on the transportation systems operating in the region, major logistical challenges, effects on businesses and economic development, the role of technology and possible improvement strategies. A descriptive research design was adopted, while data from 150 respondents were analysed using a five-point Likert scale. The findings produced grand means of 4.11, 4.12, 4.11, 4.05 and 4.21 for the five research questions respectively, with an overall mean of 4.12. The findings demonstrate strong support for improved road infrastructure, multimodal transportation, digital logistics systems, logistics centres, public-private partnerships and stakeholder coordination. These findings are broadly consistent with existing research on logistics challenges in South-East Nigeria (Onyemechi, 2019; Chilokwu, 2024).

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