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Transport Cost Minimization and Performance of State-Owned Transport Companies: The Role of Innovative Capability

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Abstract

The study examined the moderating effect of innovative capability on the relationship between transport cost minimization and performance and state-owned transport companies. The study exclusively relied on quantitative data analysis techniques. This study employed explanatory research design because explanatory research design is particularly valuable when there is a need to gain a deeper understanding of the relationships between variables. The results show that transport cost minimization has a significant positive effect on the performance of state-owned transport of the state-owned transport. Innovative capability significantly and positively impacts the performance of the state-owned transport. Innovative capability significantly enhances the performance of the state-owned transport company, it does not significantly moderate the relationship between transport cost minimization and performance of state-owned transport. The assess the influence of transport cost minimization on performance of state-owned transport companies. The study also examines the influence of innovative capability on performance of state-owned transport companies.

Keywords: *Transport Cost Minimization, Performance of State-Owned Transport Companies, Innovative Capability.*

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1.0 INTRODUCTION

One of the primary challenges faced by state-owned transport companies is the imperative to minimize transport costs. This includes the expenses associated with fuel, maintenance, and logistics. The need for cost reduction is driven by the broader economic context, where competitive pressures necessitate efficiency gains and financial sustainability (Smith et al., 2018). However, the methods and strategies employed by these companies to achieve cost minimization, and the subsequent impact on their overall performance, remain underexplored. The performance of state-owned transport companies is a multifaceted concept encompassing economic, social, and environmental dimensions. While there is acknowledgment of the vital role these entities play in economic development (Johnson, 2020), there is a lack of comprehensive understanding regarding the specific performance metrics influenced by transport cost minimization. Issues such as the economic impact on trade facilitation, social accessibility, and environmental sustainability need closer examination to develop targeted strategies for improvement.

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Despite the significance of the relationship between transport cost minimization, performance, and innovative capability, several critical research gaps exist: Existing literature often lacks in-depth empirical studies that specifically investigate the relationship between innovative capability, transport cost minimization, and performance within state-owned transport companies (Smith, 2021).There is also a gap in the literature concerning regional or sectoral variations in the innovative capabilities and performance of state-owned transport companies, which could significantly impact transport cost minimization (Jones & Brown, 2020).There is a need for more quantitative studies to understand how the innovative capabilities of state-owned transport companies evolve over time and their sustained impact on transport cost minimization and overall performance (Johnson et al., 2021).

Also, barriers to the development and implementation of innovative capabilities within state-owned transport companies are inadequately explored, hindering the formulation of effective strategies to overcome these hurdles (Smith & Jones, 2020). The problem statement emphasizes the pressing need for comprehensive research on the intricate relationship between transport cost minimization, the performance of state-owned transport companies, and the role of innovative capability. Addressing these gaps is essential for devising informed policies and strategies that enhance the efficiency, competitiveness, and sustainability of state-owned transport entities in an ever-evolving economic landscape.

2.0 LITERATURE REVIEW

2.1. Historical Context of State-Owned Transport Companies in Ghana

The establishment of state-owned transport companies in Ghana traces its roots back to the post-colonial era. The government recognized the need for a reliable and accessible transportation network to support economic activities and enhance national connectivity. The Ghanaian government, in its pursuit of economic development, took initiatives to establish state-owned transport entities, focusing on road, rail, and maritime transportation *(Muchori, 2015)*. Several state-owned transport companies contribute significantly to Ghana's transportation infrastructure. Notable entities include the Ghana Railway Company Limited (GRCL), the Metro Mass Transit Limited (MMTL), and the State Transport Company Limited (STC). Each of these companies fulfills a unique role in the transportation sector, providing services such as inter-city bus transportation, urban mass transit, and railway operations.

The Ghana Railway Company Limited operates and manages the national railway network, contributing to the transportation of goods and passengers across different regions of the country. The Metro Mass Transit Limited focuses on providing affordable and accessible urban mass transit services, particularly in major cities and urban areas. The State Transport Company Limited is a long-standing player in inter-city bus transportation, connecting various towns and cities to facilitate the movement of people and goods *(Prempeh, 2015)*.

Despite their crucial role, state-owned transport companies in Ghana encounter challenges that impact their performance. Insufficient funding, outdated infrastructure, bureaucratic inefficiencies, and political interference are among the challenges that hinder their effective operations *(Prempeh, 2015)*. Inadequate financial resources often limit the ability of these entities to invest in modern technologies, maintain infrastructure, and compete effectively with private sector counterparts. Bureaucratic inefficiencies can lead to operational delays, affecting service quality and customer satisfaction. Additionally, political interference may influence decision-making processes, potentially hindering long-term strategic planning and operational improvements *(Muchori, 2015)*.

State-owned transport companies in Ghana have implemented various strategies to address challenges and enhance sustainability. Technological advancements play a crucial role, with the introduction of modern fleet management systems, electronic ticketing, and real-time monitoring to improve efficiency and customer service *(Macharia & Mwangangi, 2016)*. Collaborative partnerships, both within the public sector and with the private sector, have been explored to

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overcome financial constraints and enhance operational effectiveness *(Zaid, Sleimi, & Alaqra, 2021).* Moreover, there has been a growing emphasis on transparent governance structures to mitigate bureaucratic challenges. Strategic planning and the adoption of best practices from successful international transport entities are being considered to improve overall efficiency *(Zaid et al., 2021).* These strategies aim to ensure that state-owned transport companies are not only financially viable but also capable of providing reliable, safe, and affordable transportation services to the Ghanaian public. State-owned transport companies in Ghana, including GRCL, MMTL, and STC, are vital components of the nation's transportation infrastructure. While facing challenges, these entities are actively adopting strategies to enhance sustainability, efficiency, and customer satisfaction. The continuous improvement of these state-owned companies is crucial for achieving the government's broader economic and developmental objectives, ensuring that transportation remains a facilitator of growth and connectivity in Ghana.

2.2. Performance of State-Owned Transport Companies

State-owned transport companies play a vital role in national economies by providing essential transportation services and contributing to overall economic development. Evaluating the performance of these entities is critical for ensuring efficiency, accountability, and the optimal utilization of public resources. Assessing the performance of state-owned transport companies involves analyzing various key performance indicators (KPIs) that reflect their operational efficiency and financial viability. According to a study by *Prempeh (2015),* KPIs may include revenue generation, cost-effectiveness, asset utilization, customer satisfaction, and safety records. Examining these indicators provides a comprehensive view of the company's effectiveness in meeting its objectives and serving the public interest.

Financial performance is a crucial aspect of evaluating state-owned transport companies. *Gupta and Boyd (2008)* suggest that financial indicators such as revenue growth, profitability, and cost management are essential for determining the economic sustainability of these entities. Additionally, assessing the return on investment and comparing financial ratios with industry benchmarks helps gauge the financial health of state-owned transport companies *(Mukolwe & Wanyoike, 2015).* Operational efficiency is another critical dimension of performance evaluation. Effective fleet management, route optimization, and adherence to schedules contribute to the overall efficiency of state-owned transport companies *(Achieng, Paul, & Mbura, 2018).* The ability to maintain a reliable and punctual service reflects positively on the company's performance and enhances public trust.

The satisfaction of passengers and customers is an integral part of evaluating state-owned transport companies. *Achieng et al. (2018)* emphasize the importance of service quality, reliability, and cleanliness in ensuring positive customer experiences. Surveys and feedback mechanisms are valuable tools for assessing customer satisfaction and identifying areas for improvement. Safety records and compliance with regulations are fundamental aspects of evaluating the performance of state-owned transport companies. *Dodoo et al. (2020)* argue that a commitment to safety not only protects passengers and assets but also enhances the reputation and trustworthiness of the company. Compliance with industry standards and regulations ensures that the company operates within legal frameworks, fostering transparency and accountability. Despite their critical role, state-owned transport companies often face challenges that impact their performance.

Common challenges include inadequate funding, outdated infrastructure, bureaucratic inefficiencies, and political interference *(Muchori, 2015).* These challenges can impede effective operations, hinder investment in modern technologies, and compromise the overall performance of state-owned transport companies. Several strategies can be employed to enhance the performance of state-owned transport companies. One key approach is to implement technology-driven solutions such as fleet management systems, ticketing systems, and real-time monitoring *(Macharia & Mwangangi, 2016).* Additionally, partnerships with the private sector, transparent

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governance structures, and strategic planning are crucial for overcoming bureaucratic challenges and improving efficiency *(Zaid, Sleimi, & Alaqra, 2021)*.

2.3 Empirical Review

An empirical review is a type of literature review that focuses on summarizing, analyzing, and synthesizing existing empirical studies and research findings relevant to a specific research question, topic, or field of study. Unlike conceptual reviews that emphasize theoretical frameworks and ideas, empirical reviews prioritize empirical evidence derived from actual observations, experiments, surveys, or other research methods.The transport sector plays a pivotal role in economic development, facilitating the movement of goods and people. Within this sector, state-owned transport companies are significant entities tasked with ensuring efficient and cost-effective transportation services. This empirical review explores the relationship between transport cost minimization, the performance of state-owned transport companies, and the role of innovative capability.

2.4. Transport Cost Minimization and State-Owned Transport Companies

Transport cost minimization is a crucial aspect for state-owned transport companies as it directly influences their financial sustainability and operational efficiency. These companies often face challenges related to fuel costs, maintenance, infrastructure development, and regulatory compliance. Effective cost management is imperative to ensure competitive pricing, financial stability, and the ability to invest in modernization and expansion. Several studies highlight the importance of transport cost minimization for the performance of state-owned transport companies. For example, *Muchori (2015)* investigated the impact of traffic congestion on the efficiency of freight logistics at the Port of Mombasa. The study revealed a positive association between traffic congestion and transportation costs, emphasizing the need for state-owned transport companies to address congestion issues to minimize costs.

2.5. Innovative Capability in State-Owned Transport Companies

In the context of state-owned transport companies, innovative capability becomes a critical factor influencing their ability to minimize transport costs and enhance overall performance. Innovative capability involves the continuous transformation of knowledge and ideas into new products, processes, and systems *(Szeto, 2000)*. In the transport sector, this capability can manifest through the adoption of advanced technologies, optimization of logistics processes, and the introduction of eco-friendly initiatives. *Macharia and Mwangangi (2016)* examined the impact of logistics management, including innovative practices, on the performance of the industrial sector. The study found that the use of transport management systems significantly predicted business performance. This suggests that state-owned transport companies can leverage innovative capabilities, such as advanced logistics management systems, to enhance their overall performance.

2.6. The Interplay: Transport Cost Minimization, Innovative Capability, and Performance

The interplay between transport cost minimization, innovative capability, and the performance of state-owned transport companies is a complex and dynamic relationship. State-owned transport companies that effectively minimize transport costs through innovative practices can achieve a competitive edge and improved financial performance. *Research by Luu (2019)* evaluated the logistics performance of 150 businesses and its impact on business performance. The study revealed that improved logistics efficiency, driven by innovative practices, resulted in increased inventory availability, timely delivery, and overall firm performance. The empirical evidence suggests a strong link between transport cost minimization, innovative capability, and the performance of state-owned transport companies. Effectively managing transport costs through innovative practices contributes to financial sustainability and operational efficiency. State-owned transport companies that invest in innovative capabilities, such as advanced logistics management systems and eco-friendly initiatives, can enhance their overall performance and competitiveness in the dynamic transport sector.

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2.7. Theory of Constraints

Eliyahu Goldratt formulated the theory of constraints (TOC) as a management philosophy aimed at identifying limitations that hinder optimal system performance *(Gupta & Boyd, 2008)*. The underlying idea asserts that every organization possesses at least one constraint, or limiting factor, preventing the entire system from achieving planned objectives *(Puche et al., 2016)*. Any factor impeding a company from meeting its goals is labeled as a limitation *(Antwi, 2019)*, representing the weakest link in the system and a primary hindrance to fulfilling the firm's aims *(Dodoo, Appiah, & Donkoh, 2020; Prempeh, 2015)*.

The theory suggests that businesses can only overcome their constraints by addressing them systematically, strategically, and comprehensively. *Flynn et al. (2010)* emphasize continuous system improvement through total quality management and efficient processing processes to tackle limitations. In manufacturing organizations, inventory issues often pose challenges, leading to prolonged lead times, subpar material orders, unmet urgent orders, low customer satisfaction, and suboptimal performance *(Qrunfleh & Tarafdar, 2013)*. Accordingly, the theory advocates resolving inventory problems by implementing effective inventory management strategies, alleviating bottleneck concerns while maintaining control over inventory and production scheduling. Additionally, *Puche et al. (2016)* state that the concept enhances value addition without disrupting production flow by eliminating constraints. This perspective is supported by Total Ownership Cost (TOC), aiding industrial firms in understanding inventory limitations and implementing practical techniques such as Just In Time (JIT), supply side platform/storage service provider (SSP), Materials Requirement Planning (MRP), Economic Order Quantity (EOQ), and Vendor-managed inventory (VMI) among others.

2.7.1. Strategic Choice Theory

According to the strategic choice theory, the decisions undertaken by top management not only influence organizational performance but also shape interactions with internal and external entities *(Wangrow & Schloemer, 2019)*. The theory emphasizes the importance of key management decisions in elevating organizational performance, as highlighted by *Sinaga et al. (2019)*. Additionally, strategic choice theory delineates various environmental factors, such as supply, inventory, and purchase management, that impact a manager's decision-making capabilities. It asserts that decision-makers with management authority must judiciously select inventory investments and optimization strategies to significantly enhance performance outcomes.

Strategic choice theory characterizes management as downstream decision-makers who influence choices while adjusting organizational processes, structures, and systems *(Sinaga et al., 2019)*. To uphold high performance standards, they are compelled to make prudent decisions safeguarding the organization's culture, resources, and inventory. Moreover, *Achieng, Paul, and Mbura (2018)* have developed a strategic option model illustrating the interconnectedness of an organization's actions, environment, and performance objectives. This methodology aims to ensure high performance standards, especially when faced with resource constraints. The theory asserts that management must make relevant and wise decisions concerning inventory management to preempt future inventory issues. Consequently, managers should employ inventory management strategies aligned with their specific industry; failure to do so may jeopardize a company's profitability, operational efficiency, overall performance, and continued existence. The research is grounded in strategic choice theory, elucidating how decisions made by top management regarding inventory management practices can either positively or negatively impact the success of their businesses.

2.8. Relationship between Transport Cost Minimization and Performance of State-Owned Transport

Minimizing transport costs is fundamental for ensuring the financial stability of state-owned transport companies. Effective cost management allows these entities to maintain competitive pricing structures, making their services more attractive to customers. This competitive pricing is directly linked to improved financial performance *(Muchori, 2015)*. Logistics, which

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encompasses transport cost management, is a critical component influencing the overall operational efficiency of state-owned transport companies. The ability to minimize costs within the logistics framework positively correlates with improved operational performance and streamlined processes, contributing to organizational success *(Macharia & Mwangangi, 2016)*. Minimizing transport costs allows state-owned transport companies to provide more cost-effective services to customers. This, in turn, leads to increased customer satisfaction and loyalty. Satisfied customers are more likely to use the services repeatedly, contributing to sustained business performance *(Luu, 2019)*. Cost minimization strategies enable state-owned transport companies to optimize their resources, leading to enhanced adaptability to changing market conditions. Companies that efficiently manage costs are better equipped to invest in modernization, technology adoption, and infrastructure improvements, all of which positively impact overall performance. The evidence from various studies emphasizes that:

H1: Positive relationship exist between transport cost minimization and performance of state-owned transport.

2.8.1. Relationship between Innovative Capability and Performance of Stat-Owned Transport
Innovative capability plays a crucial role in driving operational efficiency within state-owned transport companies. Advanced technologies and innovative solutions enable these entities to optimize their processes, streamline logistics, and improve overall operational effectiveness *(Luu, 2019)*. The adoption of innovative practices in state-owned transport companies positively influences customer satisfaction. Innovations such as real-time tracking, online booking systems, and improved service quality contribute to a positive customer experience, fostering loyalty and repeat business *(Macharia & Mwangangi, 2016)*. Innovative capability enhances the adaptability of state-owned transport companies to dynamic market conditions. Companies that embrace innovation are better positioned to respond to changes in customer preferences, technological advancements, and regulatory requirements, ensuring sustained performance in a rapidly evolving environment.

Innovation can lead to resource optimization and cost reduction, contributing to improved financial performance. State-owned transport companies that leverage innovative solutions often find more efficient ways to manage resources, reduce operational costs, and invest in sustainable practices, positively impacting their overall performance *(Luu, 2019)*. The adoption of innovative technologies gives state-owned transport companies a competitive edge in the market. Technologies such as GPS tracking, automation, and data analytics enhance service quality, increase efficiency, and differentiate these companies from competitors, positively influencing their overall performance *(Luu, 2019)*. Based on the issues discussed, it is hypothesized that:
H2: innovative capability has a positive influence on performance of stat-owned transport.

2.8.2. The moderating role of Innovative Capability
Innovative capability, when applied to transport cost minimization strategies, has the potential to amplify operational efficiency within state-owned transport companies. Advanced technologies and innovative solutions enable the optimization of logistics processes, making cost-saving measures more impactful and directly contributing to improved overall operational efficiency *(Luu, 2019)*. Innovation can enhance the positive outcomes of transport cost minimization by improving customer satisfaction. State-owned transport companies that integrate innovative practices, such as user-friendly mobile apps or real-time tracking systems, not only reduce costs but also provide additional value to customers, resulting in heightened satisfaction and loyalty *(Macharia & Mwangangi, 2016)*. Innovative capability acts as a moderator by enabling state-owned transport companies to adapt more effectively to dynamic market conditions. The integration of innovative solutions allows companies to respond swiftly to changes in customer demands, emerging technologies, or regulatory requirements, ensuring that transport cost minimization strategies remain aligned with evolving market trends.

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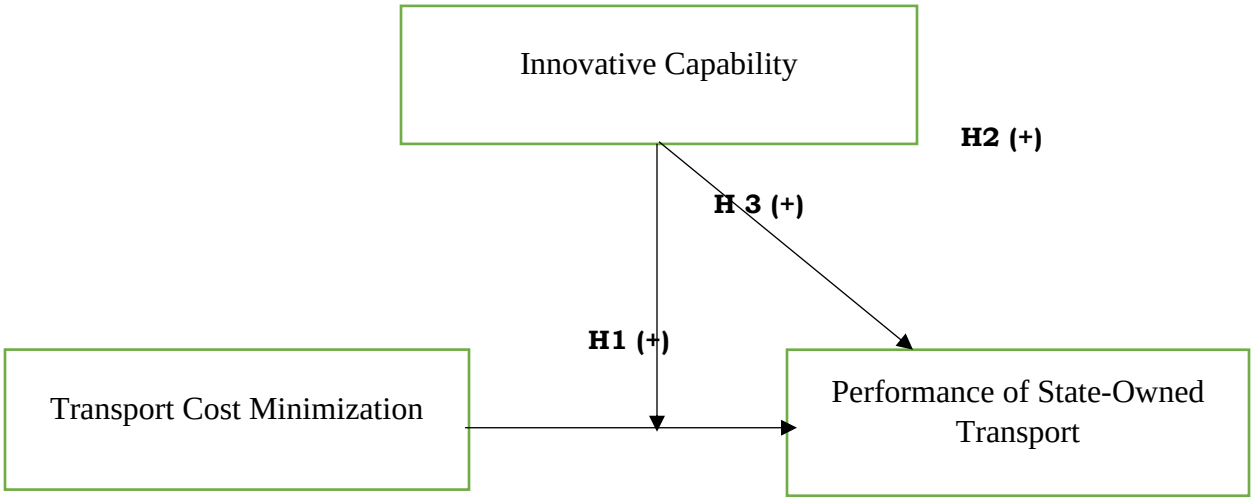
The positive moderation effect is evident in the ability of innovative capability to leverage technological advancements. State-owned transport companies that harness innovative technologies can optimize cost-minimization efforts through the adoption of state-of-the-art tools and systems, thereby gaining a competitive edge and contributing to improved overall performance *(Luu, 2019)*. Innovation acts as a catalyst for resource optimization and cost-efficiency. By integrating innovative practices into transport cost minimization strategies, state-owned transport companies can identify novel ways to manage resources, reduce operational costs, and introduce sustainable practices, thereby magnifying the positive impact on performance *(Luu, 2019)*. This study proposes that:

H3: innovative capability positively moderates the relationship between transport cost minimization and performance of state-owned transport.

2.9 Conceptual Framework



3.0 RESEARCH APPROACH

The collection of primary data for this study involved the distribution of self-administered questionnaires, primarily utilized for conducting the survey. These structured questionnaires were designed to gather information from key respondents across various departments within the respective entities surveyed. Each questionnaire comprised statements addressing the study variables, allowing for the establishment of respondents' perspectives on the procurement function's performance in their respective entities.

Prior to the actual survey, the questionnaires underwent preparation and testing to identify and rectify any unresponsive questions. To ensure reliability and validity, the study adopted a standardized questionnaire derived from existing literature, incorporating constructs utilized by scholars in previous research.

Consequently, the study exclusively relied on primary data, defined as firsthand and unprocessed information. This type of data is specifically collected from respondents to address the research objectives. In this study, the significance of green supply chain management, market orientation, and organizational operational performance was explored through the use of questionnaires distributed via electronic mail.

The decision to gather primary data was driven by the need for reliable information directly from individuals involved in the study who could read and respond to the questionnaire. Despite the availability of two primary data sources, namely primary and secondary data, this study opted for an exclusive reliance on primary data due to the extensive nature of the research.

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4.0 RESULTS

4.1 Reliability and Validity Tests

Reliability refers to the consistency or repeatability of measurements. It indicates the extent to which the results can be replicated under similar conditions. Validity refers to the extent to which a test measures what it is intended to measure. It indicates the accuracy and applicability of the measurement. Cronbach's Alpha: Used to assess internal consistency reliability. Values range from 0 to 1, with higher values indicating greater reliability. Correlation Coefficients was used in test-retest, parallel-forms, and inter-rater reliability to determine the strength and direction of relationships between scores. Factor Analysis was also used to assess construct validity by examining the underlying structure of a set of variables and determining whether they group together as expected.

Expert Review and Judgment was used to assess content validity by having experts evaluate whether test items adequately cover the construct. Reliability and validity are fundamental aspects of any measurement tool in research. Ensuring high reliability and validity increases the credibility and generalizability of the study's findings, making the results more valuable and applicable in real-world scenarios. The table 4.2 presents the results of reliability and validity tests for three constructs: Innovative Capability, Transport Cost Minimization, and Performance of State-Owned Transport.

Table 4.1 Validity and Reliability Results

Construct	Cronbach's Alpha	KMO	Number of items
Innovative Capability	.892	.866	12
Transport Cost Minimization	.915	.864	5
Performance of State-Owned Transport	.890	.864	9

Table 42.1 Factor Loadings

Items	Factor Loadings	Items	Factor Loadings	Items	Factor Loadings
INC1	.664	PSOT1	.738	TCM1	.767
INC2	.617	PSOT2	.661	TCM2	.750
INC3	.684	PSOT3	.710	TCM3	.683
INC4	.687	PSOT4	.633	TCM4	.695
INC5	.741	PSOT5	.643	TCM5	.695
INC6	.753	PSOT6	.652		
INC7	.731	PSOT7	.710		
INC8	.711	PSOT8	.667		
INC9	.615	PSOT9	.630		
INC10	.596				
INC11	.611				
INC12	.646				

Cronbach's Alpha is a measure of internal consistency, indicating how well the items in a construct are correlated with each other. Higher values suggest better reliability. Innovative Capability Cronbach's Alpha = 0.892. This indicates excellent internal consistency, meaning the 12 items measuring Innovative Capability are highly correlated and reliable. Transport Cost Minimization Cronbach's Alpha = 0.915. This also indicates excellent internal consistency, suggesting that the 5 items measuring Transport Cost Minimization are very reliable.

Performance of State-Owned Transport: Cronbach's Alpha = 0.890. This shows excellent internal consistency, indicating that the 9 items measuring the Performance of State-Owned Transport are reliable. The KMO measure tests the adequacy of the sample for factor analysis. It ranges from 0 to 1, with values closer to 1 indicating that factor analysis is appropriate. A KMO value

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above 0.7 is generally considered adequate. Innovative Capability recorded a KMO = 0.866 and this value indicates a very good adequacy for factor analysis. Transport Cost Minimization recorded a KMO = 0.864 and this value also indicates very good adequacy for factor analysis. Performance of State-Owned Transport recorded a KMO = 0.864 and this value suggests very good adequacy for factor analysis.

Factor loadings indicate the correlation between each item and the underlying factor it is intended to measure. Higher loadings suggest that the item is a strong indicator of the construct. Innovative Capability (INC), all the items show moderate to high loadings, indicating they are good measures of Innovative Capability. Performance of State-Owned Transport (PSOT), all the items also show moderate to high loadings, indicating they are good measures of the Performance of State-Owned Transport.

Transport Cost Minimization (TCM), all the items show high loadings, indicating they are strong measures of Transport Cost Minimization. The Cronbach's Alpha values indicate that the constructs have excellent internal consistency, suggesting that the items within each construct are reliable. The KMO values show that the sample is adequate for factor analysis, supporting the validity of the constructs. The factor loadings further confirm that the items are good indicators of their respective constructs, ensuring both reliability and validity of the measurement instruments.

4.2 Correlation among the variables

In data analysis, correlation among variables is used to determine the strength and direction of the linear relationship between pairs of variables. Here's an explanation of how to interpret the correlations among the variables (Innovative Capability, Transport Cost Minimization, and Performance of State-Owned Transport) and the implications

Table 4.2 Correlations among variables

Variables		PSOT	TCM	INC
PSOT	Pearson Correlation	1	.766**	.813**
	Sig. (2-tailed)		.000	.000
	Sum of Squares and Cross-products	99.580	97.494	84.976
	Covariance	.706	.691	.603
	N	142	142	142
TCM	Pearson Correlation	.766**	1	.776**
	Sig. (2-tailed)	.000		.000
	Sum of Squares and Cross-products	97.494	162.779	103.709
	Covariance	.691	1.154	.736
	N	142	142	142
INC	Pearson Correlation	.813**	.776**	1
	Sig. (2-tailed)	.000	.000	
	Sum of Squares and Cross-products	84.976	103.709	109.695
	Covariance	.603	.736	.778
	N	142	142	142

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

Note: PSOT= Performance of State-Owned Transport; TCM=Transport Cost Minimization; INC= Innovative Capability.

There is a strong positive correlation between performance of state-owned transport and transport cost minimization. As transport cost minimization improves, the performance of state-owned transport also tends to improve. The correlation is statistically significant at the 0.01 level, indicating a very low probability that this correlation is due to chance. There is a very strong

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positive correlation between performance of state-owned transport and innovative capability. Higher innovative capability is associated with better performance of state-owned transport. The correlation is statistically significant at the 0.01 level. There is a strong positive correlation between transport cost minimization and innovative capability. as innovative capability increases, transport cost minimization tends to improve. The correlation is statistically significant at the 0.01 level. The correlations among the three variables indicate strong, significant positive relationships, suggesting that improvements in one area (e.g., innovative capability) are likely to be associated with improvements in other areas (e.g., transport cost minimization and performance of state-owned transport). This interconnectedness highlights the importance of innovation and cost management in enhancing the performance of state-owned transport systems.

Table 4. 11 Hypotheses Testing and Findings

Hypothesis	Relationship	Beta value	T value	P value	Remarks
H1	**TCM - ->PSOT**	.766	14.088	.000	Supported
H2	**INC- -> PSOT**	.822	17.078	.000	Supported
H3	**INC- -> TCM * PSOT**	.0549	.0119	.9905	Not Supported

5.0 DISCUSSION OF RESULTS

5.1 Effect of transport cost minimization on performance of state-owned transport

The study determined the effect of transport cost minimization on performance of state-owned transport and findings of the study suggest that transport cost minimization has a significant positive effect on the performance of state-owned transport of the state-owned transport. Firstly, minimizing transport costs directly affects the profitability of transport companies. Lower costs lead to higher profit margins, enabling these companies to reinvest in their operations and improve their services.

For example, a study by *Wang and Cullinane (2015)* highlighted those state-owned enterprises (SOEs) in the transport sector that implemented cost reduction strategies saw a significant improvement in their financial performance compared to those that did not prioritize cost minimization. This improvement is often reflected in better Return on Investment (ROI) and Return on Assets (ROA), which are critical indicators of financial health.

Moreover, transport cost minimization enhances operational efficiency. By optimizing routes, reducing fuel consumption, and improving load management, state-owned transport companies can significantly lower their operational costs. This efficiency not only reduces expenses but also improves service delivery times and reliability. According to findings by *Pels and Rietveld (2016)*, efficient cost management practices in public transport can lead to better allocation of resources, which in turn improves service quality and customer satisfaction.

5.2 Effect of innovative capability on performance of state-owned transport

The study determined the effect of innovative capability on performance of state-owned transport and the findings of the study demonstrates that innovative capability significantly and positively impacts the performance of the state-owned transport company, explaining a substantial portion of the performance variance. Innovation in service offerings and customer engagement significantly boosts performance. State-owned transport companies that continuously innovate their services to meet changing customer needs tend to achieve higher customer satisfaction and loyalty.

According to a study by *Hu et al. (2019)*, companies that introduced digital ticketing systems, real-time tracking apps, and personalized customer communication saw a marked improvement in customer satisfaction scores and repeat usage rates. This customer-centric innovation helps retain existing customers and attract new ones, thereby increasing revenue.

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Innovative capability fosters market competitiveness. State-owned transport companies that lead in innovation can differentiate themselves from competitors, gaining a competitive edge. This is particularly important in an increasingly competitive and privatized transport market. For instance, research by *Cruz and Sarmento (2020)* found that state-owned transport companies that invested in green technologies and sustainable practices not only reduced their environmental impact but also appealed to environmentally conscious consumers, enhancing their market position.

5.3 Moderating effect innovative capability on the relationship between transport cost minimization and performance of state-owned transport

The study determined the moderating effect innovative capability on the relationship between transport cost minimization and performance of state-owned transport and the findings of the study indicate that innovative capability significantly enhances the performance of the state-owned transport company, it does not significantly moderate the relationship between transport cost minimization and performance of state-owned transport. Integrating innovative practices into cost minimization strategies can be complex and resource-intensive. State-owned transport companies often face bureaucratic hurdles and resistance to change, making it difficult to effectively implement innovative solutions.

According to *Kafouros et al. (2015)*, the integration of new technologies and practices requires significant changes in organizational processes and culture, which can be challenging in state-owned entities that are typically less agile than their private counterparts. Innovative initiatives often require substantial upfront investment, which may not align with the immediate cost reduction goals. These investments include R&D, employee training, and acquisition of new technologies, which can temporarily increase costs. *Hu et al. (2019)* highlighted that while innovation can lead to long-term efficiency gains, the initial costs can negate short-term benefits, making it difficult to see immediate improvements in performance from cost minimization efforts.

5.4 Managerial Implication

Managers should engage with stakeholders, including employees, customers, and government bodies, to support cost minimization initiatives. Effective communication and collaboration with stakeholders can facilitate the adoption of cost-saving measures and ensure alignment with broader organizational objectives.

Managers should prioritize cost efficiency as a strategic objective. This involves continuously seeking ways to reduce operational costs without compromising service quality. Emphasizing cost-efficient practices can improve profitability and enable the allocation of savings to other critical areas, such as innovation and service improvements.

Managers should leverage data analytics to gain insights into cost drivers and operational performance. By analyzing data on fuel usage, vehicle maintenance, and route efficiency, managers can make informed decisions that lead to cost savings and improved operational performance.

Managers should be implementing robust performance monitoring systems is crucial for tracking the impact of cost minimization efforts. Managers should regularly review key performance indicators (KPIs) related to cost efficiency, such as fuel costs, maintenance expenses, and operational efficiency metrics. Regular monitoring allows for timely adjustments and ensures that cost minimization strategies are effective.

5.5 Theoretical Contribution

Much of the innovation literature focuses on private sector organizations. The findings that innovative capability positively affects performance in state-owned transport companies contribute to the growing body of knowledge on public sector innovation. This theoretical contribution emphasizes that state-owned enterprises, despite their distinct characteristics, can

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benefit significantly from fostering an innovative culture and investing in R&D, technology, and creative problem-solving.

The relationship between innovation and organizational performance is a fundamental area of research in management and organizational studies. The positive effect of innovative capability on the performance of state-owned transport companies provides empirical evidence that supports this linkage. It extends existing literature by highlighting how innovation specifically impacts performance in the context of state-owned enterprises, which often face unique challenges such as bureaucratic inertia, regulatory constraints, and limited market competition.

The positive effect of innovative capability on performance also has significant implications for policy and management theory in the context of state-owned enterprises. It suggests that policies encouraging innovation, such as funding for R&D, incentives for technological adoption, and support for innovation ecosystems, can enhance the performance of state-owned transport companies. This theoretical contribution informs policymakers and managers about the critical role of innovation in driving public sector efficiency and effectiveness.

5.6 Recommendation

Organizations are to establish a comprehensive strategy that prioritizes cost efficiency across all operations. This strategy should include specific goals, metrics, and timelines to ensure a systematic approach to cost reduction. Incorporate cost efficiency into the company's broader strategic planning and performance evaluation processes.

Organizations should invest in technologies that enhance operational efficiency. This includes route optimization software, fuel management systems, and predictive maintenance tools. Such technologies can reduce fuel consumption, minimize downtime, and optimize route planning, leading to significant cost savings and improved performance.

Organizations are to utilize big data and analytics to monitor and analyze operational data. This can help identify inefficiencies and areas for cost reduction. For example, data analytics can optimize fleet management by predicting maintenance needs and optimizing fuel usage, thereby reducing operational costs.

Organizations are to develop and implement training programs focused on cost-efficient practices. Train drivers in fuel-efficient driving techniques and maintenance staff in predictive maintenance practices. Employee training should also cover the use of new technologies and lean management principles.

5.7 Limitations of the Study

The study uses a cross-sectional design, it captures data at a single point in time, which may not fully account for changes and trends over time. Longitudinal studies that track performance and innovative capability over an extended period would provide a more dynamic view of the relationship between transport cost minimization and performance.

5.8 Suggestions for future Studies

Future research should develop more comprehensive models that integrate various dimensions of innovative capability, including technological, process, and organizational innovations. Such models would provide a more nuanced understanding of how innovation influences performance. Future can also explore other potential moderating and mediating variables, such as leadership styles, organizational culture, and external economic conditions, could offer deeper insights into the complex relationships among transport cost minimization, innovation, and performance.

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