

# The Strategic Factors affecting Adoption of Rail Transport in Kenya

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**Abstract:** *The aim of this study was to determine the strategic factors affecting adoption of rail transport in Kenya. the specific objectives were; to determine the effect of establish the effect of corporate governance on the adoption of rail transport in Kenya; To assess the role of government transport policies on the adoption of rail transport in Kenya and to identify the influence of staff competency on the adoption of rail transport in Kenya. The study was based on the resource-based view of the firm (RBV). It was a case study of the Kenya railway corporation. The sample size was 196 Kenya Railways employees. A questionnaire was the main tool for data collection. analysis of the data revealed that staff competence had a significant influence on adoption of railway transport Kenya. Government policies on transport had also significant influence on adoption of rail transport in Kenya. However the positive influence of corporate governance was not statically supported at 0.05 significant levels. Thus the study concluded that staff competencies and transport policies are key determinants in enhancing use of rail as means of transportation in Kenya. Therefore the study recommended that policies be constantly reviewed such that they take into consideration the changing realities in the environment like customer preferences, taste and competition. Government should channel adequate funding and facilities at the training institutions to improve technical skills and training opportunities should be fairly given to employees to motivate them. And there should be people of integrity especially the senior management to inculcate a culture of transparency in the organization. The study finally recommended that other similar studies be undertaken that include other variables like competition and pricing of substitutes services.*

**Keywords:** Capital Constraint, Public Infrastructure, Capital Budgeting, Non-Motorized Transport, Concession

## 1. Introduction

Transport is the life-blood of the twenty-first century economy. Without the movement of goods and people on land, on water and in the air life as we know it would cease to exist. Both the movement of goods and people have shown long-term growth. The efficiency of transport services and the availability of reliable infrastructure and technology, as well as transfer and transit times are crucial elements of a transport chain and can impact on location, partner and investment decisions Commission Expert Group on Transport and the Environment. Kenya has experienced rapid growth in the transport industry since independence. This has proved to be essential not only for the domestic economy but also to serve the landlocked countries in Eastern Africa. According to [1], the transport infrastructure network has deteriorated significantly in the past decade owing in part to the suspension of donor funding to Kenya for this purpose.

The network has also suffered from a long and cumbersome procurement process for construction, maintenance and rehabilitation of public infrastructure coupled with poor and compromised quality of work as a result of corruption. The quality and efficiency of the transport network have fallen leading to less predictable service delivery. Lengthy delays, breakdown of transport equipment, and closure of sections of the transport networks along the major transport corridors occur on a daily basis ([www.krb.go.ke](http://www.krb.go.ke)).

The responsibility for transport infrastructure is dispersed among different government ministries, departments and levels of government, with the Ministry of Roads and Public Works responsible for the classified roads, and the Ministry

of Local Government, through various local authorities, responsible for urban and rural roads [2].

The existing institutional framework has many players who are not linked optimally. Kenya's rail network has greatly deteriorated in the last decade. In addition to poor and deteriorating road conditions in the urban centres, there is a lack of other road infrastructure facilities such as footpaths for pedestrians to make walking safer, separate lanes for cyclists or non-motorized transport modes (NMTs), or flyovers and bypasses to ease traffic congestion [3]. Although local authorities are expected to be responsible for the provision and maintenance of urban infrastructure, including roads, nearly all of them have been experiencing critical financial constraints, poor resource management and lack of quality personnel in specialized areas [4].

The government is aiming to construct a standard gauge railway line by 2017. The other projected implementation activities include construction and rehabilitation of key road links and networks under the Roads 2000 Program; rehabilitation of rural roads and reconstruction of 150 km of trunk roads per year, and concessioning of up to 1 200 km of trunk [8].

Rail transport is the second most important mode of transport in Kenya after road, for both freight and passenger services and suitable for transporting bulky and heavy commodities over long distances [9]. The railway system in Kenya comprises 2,156km of metre gauge track [10]. The rail network was handed over to a concessionaire the Rift Valley Railways (RVR) in November 2006. Prior to the concession, KRC's core function was to provide freight and passenger transport services. The corporation now provides rail transport services through concessionaire and manages

other assets, including land, building workshops, track, signaling and telecommunication facilities, locomotives, passenger coaches and freight wagons, a wagon ferry on Lake Victoria and the Railway Museum, KRC's has agreed to upgrade the railway system to standard Gauge. This will increase the capacity of the line from 14 to 30 trains a day, reduce transport costs, shorten transit time from Mombasa to Malaba from two days to 12 hours and increase annual cargo tonnage from five million to 29 million.

The Kenya Railways Corporation was established in 1977 by Act of Parliament (Cap 397) of the Laws of Kenya, and commenced operations on January 20, 1978. The overall mandate of the Corporation then was to provide a coordinated and integrated system within Kenya of rail and inland waterways transport services and inland port facilities. The Act was amended through The Kenya Railways (Amendment) Act 2005 to make it possible for the Board of Directors to enter into concession agreements or other forms of management for the provision of rail transport services. Following this Amendment, KRC conceded railway operations to Rift Valley Railways (K) from November 1, 2006 for 25 years for freight services and 5 years for passenger services.

The Government supervises the Corporation through the Ministry of Transport. The railway system in Kenya comprises 2,156 route Kilometres of metre gauge track. Part of this distance is a 146km branch line between Magadi and Konza owned by Magadi Soda Company. Prior to the Concession, KRC's core function was to provide freight and passenger rail transport services. Following the concession, KRC now provides rail transport services through the Concessionaire and manages its other assets for maximum returns ([www.krb.go.ke](http://www.krb.go.ke)).

Kenya Railways' vision is to be a world class provider of rail and inland waterways transport while its mission is to manage Railway assets and services in the most efficient and innovative way to maximize performance [5]. The Corporation has revised its mandate since the concession with the Rift Valley Railways (K). The concession has enabled the Corporation to concentrate on other areas which had hitherto not been given enough attention due to the demanding nature of running rail transport [5]. KRC is now concentrating on management of the concession, management of non-conceded assets, promotion, facilitation and participation in national and metropolitan railway network development, development and management of inland waterways and management of the Railway Training Institute (RTI). The performance of KRC declined over several decades [6]. This state of affairs was caused by inadequate investment, poor management, a legal framework that limits independence, competition from other modes of transport and increasing operational costs [7]. As a result the Corporation relied on financial support from the exchequer for several years.

### 1.1 Statement of the problem

Rail Transport is Kenya's major source of bulk cargo transport and has, over the years, accounted for about 40% of the country's transport requirements. The Transport

industry contributes over 30% of the GNP [10]; the manufacturing sector is the largest consumer of rail cargo transport at approximately 60% of the total volume followed by household goods (19%) and agriculture (14%). The demand for cargo transport by rail on average stands at 2.5 million tons per year [10]. KRC which was incorporated in 1977 has an exclusive monopoly of transporting 100% of the mass cargo.

Kenya Railways being the leading mass cargo transporter firm in Kenya and being the most non-profitable in Kenya has drawn huge interest among academicians and other firms. The company thus has had to act soberly in all its dealings as the aggressive road transporters competitors' fight to get a niche of the transport market in Kenya. Kenya Railways Corporation is one of the firms with the largest potential in mass transport networks in Kenya. The products and services in which Kenya Railways Corporation deals in require that they be delivered in time to enable customer satisfaction Nguyen (2007). Kenya Railways Corporation requires timely delivery of mass cargo and also of its operations must be efficient. However rail transport sub-sector in Kenya is not a smooth affair due to various reasons which include slow adoption of technology, inefficient government policies, high operational costs, staff incompetence among other factors [11]. This in turn leads to the endemic ineffectiveness which leads to delays in delivery of mass cargo and services.

According to the Daily Nation dated May 7<sup>th</sup>2011; Fear of reduced profitability by transport companies and the government's rush to announce axle reduction without proper implementation plans were the main causes of the biting cargo crowding at the port of Mombasa. In an attempt to explain the benefits of rail transport adoption for mass cargo transportation researchers have examined the impact of rail transport [12] and have indeed come to a conclusion that it is the only sure way of to transport mass cargo. To the researcher's knowledge there are no known local studies on factors considered in the adoption of rail transport for mass cargo in Kenya. It is against this background that the study was conceived since only limited studies on this area have been conducted. This study therefore aims at establishing factors affecting adoption of rail transport for mass cargo movement in Kenya.

### 1.2 Research Objectives

The general objective of this study was to determine the strategic factors affecting adoption of rail transport at Kenya Railways.

This study was guided by the following specific objectives

- 1) To establish the effects of corporate governance on the adoption of rail transport in Kenya.
- 2) To assess the role of government transport policies on the adoption of rail transport in Kenya.
- 3) To identify how staff competency influences the adoption of rail transport sector in Kenya.

## 2. Theoretical Literature

According to the principle of hedonism, almost all individuals act in accordance with self-interest by exerting minimum effort to extract maximum benefits. It is assumed that everyone is cognizant of the self-interest motivations of others, and this gives platform for concerns about conflict of interest. In the context of organizations, these conflicts are apparent between the principal who engages another individual called an agent, to perform services on his/her behalf. Agency theory explains the relationship between the principal (the shareholders) and the agent (the CEO) who has been engaged to make decisions on the principal's behalf. Issues may develop because the principal and agent, while working toward the same goal, do not always share the same interests. The actions of agents (called CEOs and top management team) may not necessarily be consistent with the interests of principal (stakeholders). Strategic management therefore attempts to bring some governance mechanism through a board of directors to see that agents will not take decisions in their self-interest. The boards of directors will ensure that the interests of both the principal and agents are aligned for the benefit of the organization. In this process some agency costs are involved, such as the principal's monitoring of expenditures and the agent's bonding cost. Agency theory also explains the reasons why agents will not be motivated to exert effort unless incentives are provided and some share in the value of the firm is negotiated by the agents in the contract. Agency theory ties pay closely to performance.

According to Barney, sustained competitive advantage largely depends on the resources (assets, capabilities, organizational processes, firm attributes, information, and knowledge) a firm possesses. Although a firm's external environment is important, firm resources are far more important than the environment in which the company operates. RBV is based on two key assumptions, namely, resources are heterogeneously distributed across all the firms, and the firm resources are largely immobile. Given these assumptions, a firm secures competitive advantage if the resources possess the qualities of rarity, value, imperfect limitability, non-substitutability, and non-transferability. The proponents of RBV argue that competing firms will not be able to imitate strategies based on resources because there is causal ambiguity and social complexity associated with the relationship between these resource configurations and sustained competitive advantage. RBV has gained wide currency in the academic lexicon because its capability logic is very convincing in explaining why some firms achieve success despite the fact that they fall under the industry that is not performing well. The core logic behind the RBV is the "capability logic" that states that a firm can outperform rivals only if it has a superior ability to acquire, develop, configure, and use the resources to sustain its competitive advantage. The basic argument of the RBV is that a firm's competitiveness is a positive function of the resource mobilization and capability building so that strategies are designed to capitalize on the opportunities and mitigate threats stemming from the environment. The way in which firms exploit and leverage internal abilities and resources is the key. Having superior resources is a necessary, but not sufficient, condition. What is important is that the resources

and competencies need to be protected from exploitation by competitors through imitation and substitution.

## 3. Conceptual Framework

According to [13], a conceptual framework is a virtual or written product, one that explains, either graphically or in narrative form, the main things to be studied- the key factors, concepts, or variables and the presumed relationships among them. Conceptual framework, according to educational researcher [12], are structured from a set of broad ideas and theories that help a researcher to properly identify the problem they are looking at, frame their questions and find suitable literature. Conceptual framework as a concise description of the phenomenon under study accompanied by a graphical or visual depiction of the major variables of the study [13]. It is thus a diagrammatical representation that shows the relationship between dependent variable and independent variables. In the study, the conceptual framework will look at the factors affecting procurement of petroleum products in Kenya.

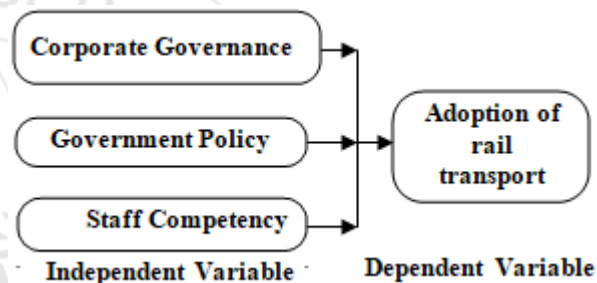


Figure 1: Conceptual Framework

## 4. Empirical Review

[14] Experiences from Implementation in the UK Public Sector studied the challenges in system specifications among indicate that the challenges in system specifications are related to software integration and data management. They examined in four UK organisations using survey data from 274 respondents. According to them, software integration refers to the customer's information infrastructure and its links to suppliers, while data management refers to data entry and the coding scheme employed. Issues in system specification include hardware resources, network resources and web server, while issues in data management include are limited levels of management information about expenditure, product and service specifications the main issues in system specification.

[15] their study aimed to explore the impact of e-procurement adoption in Australia and to understand the meaning of e-procurement success, how and why success is achieved. Insights that were obtained from systematic evaluations regarding the impact of procurement systems on 20 Australian organizations using the proposed research framework were used to develop an instrument to measure success identify barriers to achieving success and establish a framework to promote success [16]. They indicate legal and administrative procedures as key challenges in system specification due to multiple legacy system, different data formats and complex processes. In addition, [17] highlight

that legal, policy, economic foundations and long-term funding are the main barriers in e-government project. Both studies are supported by recent study in Malaysia government that shows how tight legal and administrative procedures contribute to system incompatibility with the existing online procurement legal requirements [18]. In addition, another study in Malaysia government found that most of small size suppliers face problems with weak bandwidth support, poor computing and information systems. Thus, this study posit that in addition to software integration and data management, legal and administration procedures as well as information technology (IT) infrastructure may contribute to challenges in system specification [19].

In a study on the adoption reforms in developing countries in the Ugandan context, [20] found that the adoption process is determined by how effective the provisions of the Act are applied and the value of goods and equipments to be adopted. In the same context, [20] in his study of the adoption planning and local governance in Uganda established that the success of the adoption process is interplay of various factors such as legal framework, staff competence, ethical practices, and transparency and accountability methods employed.

[13] deduced that an organization can improve its asset utilization either by generating additional sales revenue with the current level of assets or by maintaining existing sales and reducing the total assets employed by adopting of new efficient goods and services. [17] summarize the relative importance of staff competence in strategic implementation for a sample of 194 new developing economy firms. Staff competence is the most often cited objective for adoption processes, followed by rewards for achieving specific milestones and goals. A survey conducted by Price WaterHouse Cooper's documents that staff competence is the key to the whole adoption process.

[17] gathered data from three distinct sources and sought to determine which explanation was most consistent in explaining the impact of employee competencies on adoption processes. By considering a model where adjusting staff competencies are correlated with the firm's adoption strategies, staff competencies have an effect on strategies adoption. The model suggests that staff competencies are an important determinant of in adoption, particularly for mature service industries.

The adoption system requires an input of professionals with honed negotiating skills and a good grasp of market dynamics. This need is urgent in light of the diversity of functions that a procuring unit is charged with that are intricately connected to its efficiency and effectiveness [14] and [16]. Given the impact of transport activities on the operation and effectiveness of Kenya railways, it is essential that these activities be performed by qualified staff with high professional and ethical standards and using sound procedures anchored in appropriate policies and regulations. Experience has shown that an effective adoption process is one in which efforts are made at all times to have a transparent and corruption-free process and use good adoption practices. Efforts must be made to contain costs

through regular review of adoption models and approaches, monitor prices and keep records of sourcing, and use a variety of information to make informed decisions. Attention must be paid to safety, the quality of products and processes, the monitoring of external and internal environments, and the use of appropriate technology and available tools [19].

The availability and quality of human resources within an organization are critical factors that influence the capacity of an organization to deliver services. Two factors that influence availability of human resource are skills and training of personnel. For the case of staff management, a mixture of skills are required to manage assets, delivery of goods and services, manage inventory, monitor and use feedback and motivate performance. In this case the skills required include both the analytical/technical skills relevant to planning and management. Studies based on rail transportation are many, for example [12] and [14] studied the development of the rail system in Nigeria with emphasis on its role in the development of the nation. [18] Studied the rail traffic administration in Nigeria, [12] and [18] studied its problems and its prospects. Others who have x-rayed the rail transport in Nigeria are [17], [14] who studied the engineering and rail traffic, [15] and [19] studied freight traffic. [9] studied the rail transport service in Lagos metropolis with emphasis on its terminal facilities, operations, patron's perceptions and challenges. The rail track network and track system is another major component influencing the viability efficiency and the strategic relevance of rail system in national development. For example, the rail's narrow gauge tracks in Nigeria covers two major rail lines: one connects Lagos on the Bigh of Benin and Nguru in the northern state of Yobe; the other connects Port Harcourt in the Niger Delta and Maiduguri in the north eastern state of Borno. Years of neglect and lack of investments have severely hampered the capacity of the rail network to act as a mass transit vehicle. As part of its plans to revitalize the nation's railways, the government is seeking to privatize the Nigerian Railway Corporation (NRC). Under the privatization plan, the government will grant concessions to private sector companies, who would be expected to provide train service and maintain the infrastructure. Three separate concessions of 25 – 30 years are expected to be given out for the western, central and eastern regions [20]. This was eventually contracted at the initial stage and consequently paused as a result of some political intricacies in 2009. Also as stated by [20] "the train service variables are safety of service, cost of service, accessibility of service, reliability of service, efficiency of service and the comfortability of service". [17] observed that, the variables that determine the quality of rail passengers services are smoothness of the ride, cleanliness of the train, and train's time of arrival at stations.

## 5. Research Gap

Much literature focuses on the efficiency of railway transport in transportation of mass cargo, which often starts with a market metaphor that is rationalized. Studies on the influence of railway transport are in the country are numerous. Most of the studies conducted by [19], [17] etc. were based in developed economies. Locally, there is no study in Kenya that has looked at the factors affecting

adoption of rail transport for mass cargo in Kenya from the point of view of technology, government policies, staff Competency and operational costs. This study therefore, will seek to fill the knowledge gap by establishing the overall objective of this study which is to establish in a broad aspect of the factors affecting adoption of rail transport for mass cargo in Kenya.

## 6. Research Methodology

In addition, a research design is a blue print which facilitates the smooth sailing of the various research operations, thereby making research as efficient as possible hence yielding maximum information with minimal expenditure of effort, time and money.

The total population of the study was three hundred and ninety two (392). The target population was 392 because it was an ample representative figure as per data supplied by the Kenya Railway Corporation. From the target population of 392, a sample size of 30% was taken giving a sample base of consisting of Top, Middle Low management staff and Field officers.

Presentation of data was in form of Tables, Pie-charts and Bar graphs only where it provided successful interpretation of the findings. Descriptive data was provided in form of explanatory notes.

To test whether there was a relationship between strategic factors and performance of Railway Sector, regression analysis was used in the data analysis process using the regression model. Regression applications in which there were several independent variables,  $x_1, x_2, \dots, x_k$ .

The multiple regression model was used to determine the importance of each variables with respect to Rail transport performance.

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \sum$$

Y=the dependent variable.

$\beta_0$ =constant term.

$\beta_1 X_1 - \beta_4 X_4$ =independent variables.

$\sum$ =error term and therefore Rail Transport Performance= $\beta_0 + \beta_1 CG + \beta_2 SC + \beta_3 GTP + \sum$

## 7. Results and Discussion

### 7.1 Corporate governance and the adoption of rail transport in Kenya

The study clearly showed that there is a positive relationship between corporate governance and the adoption of rail transport in Kenya. That relationship is clearly characterized by the tendency of the Kenya Railways Corporation having in place integrity and transparency characterized by accountability in the utilization of strategic resources thus reduces wastage of organizational resources in the long-run thus it can act as an eventual finance saving technique.

### 7.2 Government transport policies and the adoption of rail transport in Kenya

The study found that there are effective government policies in the railway corporation. These policies are characterized by clear guidelines and procedures that are effectively communicated. It was found that government policies have a positive significant effect on the adoption of rail transport in Kenya.

Kenya Railways Corporation being a government entity is a public good and thus astronomical profitability is not be the primary objective of the organization. This benefit is eventually trickled down to the citizenry or consumers thus assisting in the eventual adoption of rail transport as Kenya's main means of transport.

### 7.3 Staff competency and adoption of rail transport in Kenya

It was established that there was the required competency among the railway workers. These competencies are characterized by having employees with relevant training, knowledge and skills that enable them become motivated to perform their duties effectively. A motivated and skilled workforce is necessary in enhancing adoption of rail transport. The study also established that staff competency had the highest positive effect on adoption of rail as means of transportation in Kenya.

It is also observable that the implementation of aggressive training and development programs through the increase of funding by the government to the Railways training Institute will also lead to an upsurge in staff competency leading to the effective adaptation of railways transport system for mass cargo movement. The findings also showed that there were some positive correlations between some of the variables.

## 8. Conclusions

Based on the study findings; the following are the summary of conclusions;

First, corporate governance enhances adoption the adoption of rail transport in Kenya. Therefore integrity, accountability and transparency issues provide a working environment for the adoption of the rail as a means of transport in Kenya. Thus it is necessary to have in place mechanisms that foster governance in the corporation.

Secondly, transport policy is one key determinant of level of adoption of rail transport. Thus guidelines and procedure that are well communicated thought the organization, sets a base for enhanced rail adoption in Kenya.

Thirdly, staff competence is the most significant determinant of adoption of the rail transport in Kenya. Skilled and knowledgeable employees working in an environment guided by proper policies are important in attracting more adoption of rail transport. Competent and motivated employees not only utilizes resources effectively, they also

create an enabling environment necessary for adoption of rail transport

## 9. Recommendations

Governance issues should be emphasized and the government should establish mechanisms that ensure that people especially in authority are only individuals of integrity. This can be achieved through rewarding good ethical practices and punishing unethical practices with equal measure. Also ethical issues should be inculcated in the training schools and have effective ethical officers in the corporation.

Transport policies are necessary in guiding the day to day running of the corporation. It is necessary that these policies be constantly reviewed such that they take into consideration the changing realities in the environment like customer preferences, taste and competition.

The government being a regulator, should channel adequate funding and facilities at the training institutions. The training opportunities should be fairly given to employees because it not only motivates, but it also ensures synergy in the organization.

This study was limited to three variable, governance, policies and employee competence. These factors only accounted for 62.9% of the variance in adoption of rail transport. This study therefore recommends that other studies be undertaken that take into account of these other factors like competition and pricing.

Finally this study recommend that other studies be undertaken that includes other government regulated bodies and not a case study as was in this current study.

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