

**PERCEIVED INFLUENCE OF OPERATIONAL STRATEGIES
ON PERFORMANCE OF WEIGHBRIDGES IN KENYA**

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DECLARATION

This research project is my original work and has not been presented for a degree in any other University

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ABBREVIATIONS AND ACRONYMS

EAC	East African Community
GVW	Gross Vehicle Weight
HSWIM	High Speed Weigh in Motion
KENHA	Kenya National Highways Authority
NCTTCA	Northern Corridor Transit and Transport Co-ordination Authority
RBVT	Resource-Based View Theory
SGS	Societe Generale de Surveillance

ABSTRACT

The objective of study was to determine the perceived influence of operational strategies on the performance of weighbridges in Kenya. The study adopted cross-sectional descriptive design. The target population was 5 weighbridge cluster managers and 30 assistant managers in the 10 weighbridges in Kenya. Since the population was small the study adopted a census study therefore all the 35 respondents (5 weighbridge cluster managers and 30 assistant managers) formed the sample size of the study. The study collected primary data through use of a questionnaire which will have both closed and open-ended questions. The questionnaire which was administered by the researcher through drop and pick later method. The data collected was first edited, coded, entered into a software (SPSS version 20) which also aided in the data analysis. Both descriptive and inferential statistics were adopted for the study. The qualitative data was generated from the open ended questions and was categorized in themes in accordance with research objectives and reported in narrative form along with quantitative presentation. The quantitative data was analyzed using descriptive statistics which included frequency distribution tables and measures of central tendency (the mean), measures of variability (standard deviation) and measures of relative frequencies. The inferential statistics included a correlation analysis which established the relationship between variables. Data was presented using tables, charts and graphs. The study found out that innovativeness driven operations strategy, quality-driven operations strategy, flexibility driven operations strategy and reliability driven operations strategy had been adopted in the weighbridges to a great extent. Adoption of these operational strategies had been prompted by the need to: improve operations processes; improve efficiency at the weighbridges; increase capacity of the weighbridges; and need to improve quality of the services offered at the weighbridges. The operational strategies had improved operational efficiency at the weighbridges, enhanced the quality of services offered at the weighbridges, increased the capacity of the weighbridges, and improved customers satisfaction. The study concludes that the implementation of operational strategies influenced performance of weighbridges in Kenya. The study recommends for continued improvements at weighbridges in terms of increased use of technology, enhancing speed and increasing capacity in the weighbridge in order to increase compliance with the axle load limits and further enhance efficiency of road transport along the Northern Corridor by eliminating unnecessary congestion at the weighbridges. There is also need for increased and regular training of staff at the weighbridges in order to equip them with the right skills and also change their attitude.

CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

In today's highly competitive, Internet based, and global marketplace, it is more important than ever for companies to have a clear plan for achieving their goals. More so, recent years have witnessed a surge of interest in the impact of operations management related activities on the operational performance in service organizations. This recognition, has in turn, placed an emphasis on the question of where and how operations management related activities have influenced the operational performance of service firms (Prajogo & Goh, 2005).

Service firms today are recognized as good sources of comparative advantage. As such, the field of service operations management has been recognized as an intriguing management area which straddles across traditional disciplines such as human resource, marketing and operations (Brechtbühl, 2004). Service operations management has been receiving much attention by academics and practitioners alike, with the ardent belief that a strong focus on operations management related activities can provide that competitive edge in service organizations (Prajogo & Goh, 2005).

Strategic operations management synchronize through ensuring supply to make business operations efficient in terms of utilizing resources as indispensable and effective in terms of gathering customers' requirements. Strategic operations management often includes considerable measurement and analysis of internal and external factors based on strategy formulation and proper implementation process of a business organization (Islam & Ali, 2011). Harry and Schroeder (2000) defined strategic operations management as a transformation process in organizations. The process of operations management involves value chain facilities which convert input

to output. This may be helpful for creating core competencies as well as achieving distinct capabilities (Islam & Ali, 2011).

According to Slack, Chambers and Johnston (2010), while operations management is at the centre of so many of the changes affecting the business world ó changes in customer preference, changes in supply networks brought about by internet-based technologies, changes in what we want to do at work, how we want to work, where we want to work, and so on; operations management is also challenging. Promoting the creativity which will allow organizations to respond to so many changes is becoming the prime task of operations managers.

1.1.1. Concept of Operational Strategies

The operations is the part of the organisation that creates and/or delivers its products and services. Every organisation, no matter in what sector, has an operations function (even if it is not called by this name) because every organisation produces some mix of products and services (Enders & Jelassi, 2009). All operations use their resources and processes to transform inputs into outputs that satisfy some customer need. Strategy is the fundamental framework through which an organization can simultaneously address its vital continuity and facilitate its adaptation to a changing environment. It is the direction and scope of an organization over a long term; which gives advantage for the organization through its configuration of resources within a challenging environment, to meet the needs of markets to fulfill owner's expectation (Hax & Majluf, 1984).

Operations strategy is the plan that specifies the design and use of these resources to support the business strategy. This includes the location, size, and type of facilities available; worker skills and talents required; use of technology, special processes

needed, special equipment; and quality control methods. It is the role of operations strategy to provide an overall plan for the use of all these resources. The operations strategy must be aligned with the company's business strategy and enable the company to achieve its long-term plan. The role of operations strategy is to provide a plan for the operations function so that it can make the best use of its resources. Operations strategy specifies the policies and plans for using the organization's resources to support its long-term competitive strategy (Reid & Sanders, 2010).

According to Slack and Lewis (2011) operations strategy is important to any type of enterprise and, just as important, to any type of manager. It can have a huge impact on the success of any type of enterprise, and the contribution of any function within the enterprise not just in the short term, but on an enduring basis. Many companies such as Amazon, Apple, Google, IKEA, Tesco, Singapore Airlines, SAB Miller, Seven-Eleven Japan, Toyota, Zara and many more have transformed their prospects through the way they manage their operations resources strategically. All have developed their strategic operations capabilities to the point where they represent a formidable asset. These firms have found that it is the way they manage their operations, and their resources in general, which sets them apart from, and above, their competitors (Slack & Lewis, 2011).

Operational strategies should act along with strategic management to create core competencies and appropriate measures are required for business organizations so that the organizations are able to create distinct competencies, raise profit and in the long run able to survive in a competitive environment. Operational strategies must add value during the conversion process and value chain may be created for the betterment of the business organizations. As a result costs of factors will be

minimized and profit will increase. Quality assurance in operations is also important. This will create efficiency and effectiveness so that distinct competencies can be earned which ultimately achieve long run sustainability (Islam & Ali, 2011).

1.1.2. Firm Performance

Lusch and Laczniak (1989) define performance as the total economic results of the activities undertaken by an organization. They argued that organizational performance comprises the actual output or results of an organization as measured against its intended outputs (or goals and objectives). On the other hand, Lebars and Euske, (2006) defines performance is a set of financial and nonfinancial indicators which offer information on the degree of achievement of objectives and results; performance is dynamic, requiring judgment and interpretation.

According to Lebars and Euske (2006), performance may be illustrated by using a causal model that describes how current actions may affect future results. Performance may be understood differently depending on the person involved in the assessment of the organizational performance (e.g. performance can be understood differently from a person within the organization compared to one from outside). Richard et al. (2009) also revealed that organizational performance encompasses three specific areas of firm outcomes such as financial performance profits, return on assets, return on investment, product market performance, sales, market share and shareholder return (total shareholder return, economic value added (Davenport & Harris, 2007)). Within organizations, there are three primary outcomes analyzed: financial performance, market performance and shareholder value performance (in some cases, production capacity performance may be analyzed (Rhyne, 2005)).

Measures of firm performance encompasses three specific areas of firm outcomes: financial performance (profits, return on assets, return on investment, etc.); market performance (sales, market share, etc.); and shareholder return (total shareholder return, economic value added, etc) (Gavrea, Ilie , Stegerean, 2011). In this study, measures of performance in the weighbridges will be ascertained by: establishing whether there has been an increase in the revenue collected in the weighbridges as a result of increased compliance; measuring the quality of services and operational efficiency at the weighbridges. Performance will also be determined by checking whether the costs of operations have reduced at the weighbridges; whether the capacity of the weighbridges has increased and customer satisfaction levels.

1.1.3. Weighbridges in Kenya

A weighbridge or railroad scale is a large set of scales, usually mounted on roads and which enables the weight of a vehicle and the content (load) to be ascertained (RCT Council, 2010). Weighbridges in Kenya are managed by Kenya National Highways Authority (KeNHA), a State Corporation established under the Kenya Roads Act, 2007, for the purpose of enforcing Axle Load Control on the roads. The weighbridges therefore help to determine weight of cargo passing at weighbridge. Kenya National Highways Authority (KeNHA), is an autonomous road agency, responsible for also the management, development, rehabilitation and maintenance of international trunk roads linking centers of international importance and crossing international boundaries or terminating at international ports (Class A road), national trunk roads linking internationally important centers (Class B roads), and primarily roads linking provincially important centers to each other or two higher-class roads (Class C roads).

The Kenyan government through KeNHA has contracted weighbridge specialists SGS on its plan to construct new facilities and operations for the country's 10 weighbridges. The project was expected to cost around US\$9.4 million, with costs including the setting up of high speed weigh-in-motion areas such as Mariakani and Namanga in efforts to improve traffic flow. The Mariakani priority was due to the heavy congestion and its proximity to the Mombasa port. Kenya is continually streamlining trucking operations on its section of the 8,800km Northern Corridor. It is both reducing the number of weighbridges and automating the remaining ones in an effort to improve efficiency and eliminate corruption. The Northern Corridor is a major gateway through Kenya to the landlocked countries of Uganda, Rwanda, Burundi, Democratic Republic of Congo and South Sudan as well as Northern Tanzania. Efforts to streamline the trucking industry are a direct response to pressure exerted by transporters and the East African Community (EAC), a regional organisation of five countries that promote the region's economic integration (Oirere, 2014).

Some of the challenges are regional in nature such as the different traffic rules and regulations in each of the East African countries and these continue to hinder smooth flow of trucking along the Corridor. There is also an unresolved question enforcing the axle or gross vehicle weight - in Uganda the trucks are weighed based on the axle load, while in Kenya the vehicles are checked for gross vehicle weight (GVW). In Kenya the maximum GVWs range from 18tonnes for two-axle rigid to 48tonnes for six-axle articulated vehicles and drawbars. The limit on a steering axle is 8tonnes with a 400kg tolerance to allow for load movement during transit, while a three-axle bogie can carry 24tonnes with a 1,200kg tolerance.

In a bid to achieve optimum levels of efficiency and to maximize economy; one of the core objectives of KeNHA is ensuring adherence to the rules and guidelines on axle load controls in the weighbridges as prescribed under the traffic act and any regulations under this act. The Kenya National Highways Authority has worked to establish a commitment as relates to the compliance of Axle load Controls. This has been witnessed via installation of High Speed Weigh in Motion (HSWIM) systems in all the weighbridges on the Kenyan portion of the East Africa Northern Transport Corridor by 31st December 2014 to ensure faster movement of compliant vehicles, automation of weighing systems in all weighbridges to ensure faster weighing, collaboration with the office of the Director of Public Prosecutions and the National Police Service to prosecute owners and drivers of overloaded vehicles, enhancement and monitoring through increased patrol of mobile units to deter cargo overloading and reconstitution, issuance of exemption permits for wide loads or out of gauge cargo and to facilitate faster weighing and movement of vehicles at weighbridges through elimination of bottlenecks causing delays.

Further the Authority has been committed to carrying out regular calibration (and engage private sector during calibration) to ensure consistency in weighing between successive weighbridges, transparency and zero tolerance to corruption at weighbridges for fair and best practices, sharing of information on overloading with relevant stakeholders in public and private sectors for monitoring and improvement on overload control (KeNHA, 2013).

The various reforms implemented at the weighbridges in improving compliance has resulted in improved performance with compliance levels now ranging from 89.6% at Athi River to 97.7% at Busia. The weighbridge crossing time, that is, time taken by

truck to cross a weighbridge area has also reduced due to adoption of improved technology which have also enhance records keeping and traceability of trucks records. The revenue collected at the weighbridges in terms of fines has also increased due to increased compliance and closing corruption loopholes. For instance at Athi River weighbridge, revenue collection have increased from Kshs. 1-2 million to Ksh. 15 million a month (KeNHA, 2014).

1.2. Research Problem

As services become an increasingly important sector in world trade, it is incumbent on academicians to develop and test appropriate theories that relate specifically to the operational performance of such firms. In today's competitive business environment, top management of service organizations must pay careful attention to the implementation of operations management related activities so as to improve the operational performance of their firms for reasons of productivity (Prajogo & Goh, 2005). Reid and Sanders, (2010) also asserts that operations strategies ensures that all tasks performed are the right tasks. It focuses on specific capabilities which give a firm a competitive edge.

Overloading and failure of the Axle load Control Department to realize success has immensely contributed to serious road damage as well as the costly maintenance. However, according to NCTTCA Transport Observatory (2014), the status of Axle Loads Control compliance in the Northern Corridor such as in Mariakani weighbridge is below 75%. This has gradually declined with the installation of other weighbridge stations in other parts of the country since this has increased the compliance levels. In a bid to increase compliance with axle load controls and restore public confidence in the management and performance of weighbridges in Kenya, KENHA has adopted

continuously adopting operational strategies. First, KeNHA contracted Societe Generale de Surveillance (SGS) a private company to operate weighbridges in the country. In 2014, the organization launched a new faster weighbridge system that the company believes would ease traffic and save on time for motorists at Mlolongo weighbridge. According to the organisation, the new system was to put to a stop the normal sight at weighbridge where lorries carrying luggage had to queue to wait for turns at the weighbridge; the new system was expected to address cases of corruption at weighbridges and enhance high level of compliance with weight limits. However, despite these operational strategies being applied in the weighbridges, it is yet to be established how these strategies are influencing or affecting the performance of weighbridges in Kenya.

A review of the local studies shows that Bosibori (2012) did a study on operations strategies in Kenyan airlines. In this study, the author only highlighted the operations strategies applied by the Kenyan airlines and the challenges faced in developing effective operations strategies. However, the study did not link the operations strategies to performance. On the other hand, Ogolla (2013) conducted a study on the operations strategy and performance among motor Vehicle assemblers in Kenya. Though the author looked at operations strategy and performance; the study was conducted on firms that are not purely service based and therefore the findings cannot be generalized to weighbridges in Kenya. The study sought to answer this question: What is the perceived influence of operational strategies on the performance of weighbridges in Kenya?

1.3 Objective of the Study

The objective of study was to determine the perceived influence of operational strategies on the performance of weighbridges in Kenya.

1.4 Value of the Study

The study was expected to be of value to the management of Kenya National Highways Authority and Kenya Roads Board who manages the weighbridges in Kenya. The organization would be able to establish and understand how the operational strategies being applied are influencing the performance of weighbridges. KeNHA has a major role to play in enhancing efficiency at the weighbridges and optimization of the road infrastructure through the performance of weighbridges. The organization would have an accurate and deep intuitive understanding on operational strategies and performance of weighbridges hence give practical recommendations to the government on further improvement.

The study would also be of significance to the Societe Generale de Surveillance (SGS), the firm contracted to operate weighbridges in the country. SGS has played a major role in enhancing faster weighbridge operations through construction of ultra-modern new facilities and operations for the country's eight weighbridges. They have enhanced the application of operational strategies and therefore the findings would help the company understand how their operations management activities have influenced performance of the weighbridges.

The study would add knowledge to the existing body of literature on operational strategies on the performance of weighbridges in Kenya and open up areas for further research for academicians and researchers. The study would also be a source of reference materials for future researchers and academia on related topics and therefore

it would be helpful to other academicians who undertake the same topic in their studies.

CHAPTER TWO: LITERATURE REVIEW

2.0. Introduction

This chapter was concerned with the theoretical and empirical literature. The theoretical review section discussed the theories in relation to the study area in order to help understand the concepts and the relationship between variables. The empirical literature section reviewed the existing literature on the effect of operational strategies on the performance of service firms.

2.2 Theoretical Review

This section discussed the theories that are attributed by other authors and scholars and are critical in informing the study. This study was guided by Resource-Based View theory, Contingency Theory, and the Principal-Agent Theory.

2.2.1. Resource-Based View Theory (RBVT)

This theory was developed by Birge Wernerfelt in 1984. It is a method of analyzing and identifying a firm's strategic advantages based on examining its distinct combination of assets, skills, capabilities and intangibles as an organization. The RBVT's underlying premise is that a firm's differ in fundamental ways because each firm possesses a unique bundle of resources-tangible and intangible assets and organizational capabilities to make use of those assets. Each firm develops competencies from these resources, and when developed especially well, these become the source of the firm's competitive advantage (Pearce & Robinson, 2007). In the context of this theory, it is evident that the resources that a firm has will play a big role in the strategic implementation process. This is because no matter how good the

strategies are, without the necessary resources to enable the implementation, they remain in the planning phase.

Although the process of using capabilities and resources for strategic purposes can create a short-term competitive advantage, a more crucial element to sustainable advantages is the match between internal capabilities and external changing circumstances (Hart, 1995). He argues that as organizations become committed to existing competency bases, they might end up in a state of isomorphism in which the ability to adapt to changing external circumstances is nil. Therefore, the competencies once being an advantage are now rendered obsolete and are of no strategic importance to a firm. Hart argues that firms will face increasing strategic disadvantages if not matching their resource-base with the growing importance of the natural environment: strategists and organizational theorists must begin to grasp how environmentally oriented resources and capabilities can yield sustainable sources of competitive advantage (Hart, 1995).

2.2.2. Contingency Theory

Contingency theory attempts to relate research on many management variables. It allows analyzing a situation and determining which variables influence the decision with which one is concerned (Donaldson, 2001). Contingency theory gives us a rich taxonomy of environments in which organizations tend to operate and ways in which they respond to these environments. Hence the theory provides a partial template of typical environments in which the process of strategy unfolds, as well as internal arrangements and levers that are available to it (Demeester & Grahovac, 2005). In considering environments that organizations tend to face, researchers such as Dess and Beard (1984); Donaldson (2001) typically focused on the dimensions of

dynamism, complexity, and munificence. Dynamism is a measure of the uncertainty or rate of change in the environment and is often proxied by the variability of sales growth. Complexity is a measure of the number of factors and the interactions between them that play a role in the environment. Munificence is a measure of the environment's capacity for growth and is commonly operationalized as industry-wide sales growth (Demeester & Grahovac, 2005).

Lawrence and Lorsch (1967), who coined the term contingency theory, observed that dynamic and uncertain environments require more "organic" organizational structures with less formalized communication and more decentralized decision-making. A management contingency model presented by Carlisle (1976) shows that the primary internal contingency on which management depends is the agency's purpose or goals. The people hired (managers/staff/clients/stakeholders), technology used, tasks performed, and organizational structure is all heavily influenced by an agency's goals (Schoech, 2006). Mills, Platts & Gregory (1995) also propose a contingency-based approach to the making of operations strategy and stress the need to link it with the contingency theories for the process of strategy.

The framework proposed by Wheelwright and Hayes (1985) can be seen to describe an evolving role for the operations executives/managers as a function of the state of resource development. Wheelwright and Hayes provide case study evidence for how a four-stage development path of the operations function affects the process of strategy. In the first stage, a firm's operations resources are not on par with those of the firm's competitors, a condition which is remedied when a firm reaches stage 2. Stage 3 is reached when the operations function begins to support and strengthen the company's competitive position. It is only at this stage that firms start to carefully screen

manufacturing investments for consistency with the overall business strategy. The fourth stage arises when operations resources reach world-class status and when business unit strategy rests to a significant degree on a company's production capability.

The operations executives engage in increasing levels of top-level communication along this path. In stage 1, production managers are barely involved in communication with top management. In stage 2, there are some interactions between operations and other functions but most important decisions are based on simple formalized processes and quantitative financial data. In stage 3, operations executives assume a broader role; they need to deeply understand the business strategy, translate it into a manufacturing strategy, and continually screen manufacturing decisions for consistency with the business strategy. In stage 4, operations executives participate directly in the formulation of the business strategy and coordinate its implementation with other functional heads, both formally and informally (Wheelwright & Hayes, 1985; Demeester & Grahovac, 2005).

2.2.3. The Principal-Agent Theory (PAT)

The theory of Agency, specifically that developed by Jensen and Meckling (1976), will be the subject of examination. Agency theory has been the subject of extensive research since its introduction in modern form by Jensen and Meckling (1976). The principal-agent theory is an agency model that deals with situations in which the principal is in position to induce the agent, to perform some task in the principal's interest, but not necessarily the agent's (Health & Norman, 2004).

Based on the separation of ownership and control of economic activities between the agent and the principal, various agency problems may arise, such as asymmetric information between the principal and the agent, conflicting objectives, differences in risk aversion, outcome uncertainty, behavior based on self-interest, and bounded rationality. The contract between the principal and the agent governs the relationship between the two parties, and the aim of the theory is to design a contract that can mitigate potential agency problems. The "most efficient contract" includes the right mix of behavioral and outcome-based incentives to motivate the agent to act in the interests of the principal (Logan, 2000).

According to Michael and Robert (2005) there are three ways in which agents may differ from their principals. First, the agents may have different preferences from their principal, such as willingness to work. Second, agents may have different incentives from the principal. Agents may have a different stake in the outcome or may receive different rewards than the principal. Third, agents may have information that is unavailable to the principal, or vice versa. These types of divergences may give rise to problems relating to monitoring, incentives, coordination, and strategy.

2.3. Operational Strategies

An organization's operations function is concerned with getting things done; producing goods and/or services for customers. The relationship between operations and the other business functions is similarly important. The objective of the operations function is to produce the goods and services required by customers whilst managing resources as efficiently as possible (Reid & Sanders, 2010). Hence, operations management is the activity of managing the resources which are devoted to the production and delivery of products and services. It is one of the core functions of

any business, although it may not be called operations management in some industries. Operations management is also concerned with managing processes. And all processes have internal customers and suppliers. But all management functions also have processes. Therefore, operations management has relevance for all managers (Slack, et. al., 2010).

Slack et al. (2004) argue that an operations strategy concerns the pattern of strategic decisions and actions which set the role, objectives and activities of operations. Their use of the term "pattern" implies a consistency in strategic decisions and actions over time. This concept is consistent with Henry Mintzberg's view of strategy as being a "pattern in a stream of actions" (Mintzberg & Waters, 1985). Mintzberg sees strategy as being realized through a combination of deliberate and emergent actions.

The process of strategy formulation is concerned with how operations strategies are put together. It is important because, although strategies will vary from organization to organization, they are usually trying to achieve some kind of alignment, or "fit" between what the market wants, and what the operation can deliver, and how that "alignment" can be sustained over time. So the process of operations strategy should both satisfy market requirements through appropriate operations resources, and also develop those resources in the long term so that they can provide competitive capabilities in the longer term that are sufficiently powerful to achieve sustainable competitive advantage. Operations managers have some responsibility for all the activities in the organization which contribute to the effective production of products and services. And while the exact nature of the operations function's responsibilities will, to some extent, depend on the way the organization has chosen to define the

boundaries of the function, there are some general classes of activities that apply to all types of operation (Slack, et. al., 2010).

Operations strategy has a vertical relationship in the corporate hierarchy with business and corporate strategies, and horizontally with the other functional strategies, most notably with marketing strategy. Operations strategy might come about in a top-down or a bottom-up process with regard to business and corporate strategies. Similarly, an operations strategy might be developed in response to market requirements (i.e. market-led) or be based on the capabilities of its operations resources (i.e. operations-led). This gives rise to four perspectives on operation strategy (Slack & Lewis, 2002). Each perspective places a different emphasis on the nature of the operations strategy process.

2.3.1. Top-Down Perspective

The top-down perspective is one in which the operations strategy is derived from, and is supportive of the organization's business strategy; an operations strategy that the organization uses to realize its business strategy. This concept is in line with that of the Hayes and Wheelwright stage 3 organization. According to this perspective, the process of developing an operations strategy would follow Skinner's approach of identifying an operation's task (Skinner, 1969). The task for operations would be determined logically from the business strategy.

Using Slack et al. (2004) five operations performance objectives is one way of articulating the operations task. For example, if the organization's business strategy is one of offering low prices, then the operation's task should be one of achieving low costs in operations. If the business strategy is based on offering customers fast delivery, the operations task should be one of achieving speed in operations, and so

on. In a multi-business organization, the top-down perspective envisages operations strategy being linked to corporate strategy via the business strategy of each business unit. This then raises the question of whether it is possible to talk of a 'corporate' operations strategy. If a corporate operations strategy means commonality in all aspects of operations, then this would only be possible if each business unit had similar business strategies and similar operations tasks (Reid & Sanders, 2010).

2.3.2. Bottom-Up Perspective

The bottom-up perspective is one which sees operations strategy emerging through a series of actions and decisions taken over time within operations. These actions and decisions might at first sight appear somewhat haphazard, as operations managers respond to customer demands, seek to solve specific problems, copy good practices in other organizations, etc. However, they can build over time to form a coherent pattern recognizable as an operations strategy. The actions taken within this kind of strategy are likely to be characterized by a continuous series of incremental improvements rather than the large one-off technologically led changes that require large capital investments in new plant and machinery (Reid & Sanders, 2010). The bottom-up perspective is one in which the organization learns from its experiences, developing and enhancing its operational capabilities as operations managers try new things out in an almost experimental fashion using their workplaces as a kind of 'learning laboratory' (Leonard-Barton, 1992).

2.3.3. Market-led

The market-led perspective is one in which the operations strategy is developed in response to the market environment in which the organization operates. There are a number of approaches in the operations strategy literature that suggest how this might

be done. The best known of these is that of Hill (1985). He suggests that an organization's operations strategy should be linked to its marketing strategy by considering how its products and services win orders in the market place. He believes it is possible to identify two types of competitive criteria in any market. Market qualifying criteria are those factors that must be satisfied before customers will consider making a purchase in the first place. Order winning criteria, on the other hand, are the factors on which customers ultimately make their purchasing decision. An operations strategy should be developed which will enable operations to match the level of performance required by customers in each of the competitive criteria (Reid & Sanders, 2010).

2.3.4. Operations-led

The operations-led perspective is one in which its excellence in operations is used to drive the organization's strategy. This is in line with the Hayes and Wheelwright stage 4 organization and fits with the resource-based view (RBV) of strategy that currently dominates the strategic management literature. The premise of the RBV is that superior performance comes from the way that an organization acquires, develops and deploys its resources and builds its capabilities rather than the way it positions itself in the market place (Barney, 1991; Wernerfelt, 1984). Thus, the process of strategy development should be based on a sound understanding of current operational capabilities and an analysis of how these could be developed in the future. This can then provide the basis for decisions about which markets are likely to be the best in which to deploy current and future capabilities, which competitors are likely to be most vulnerable and how attacks from competitors might best be countered (Hayes et al., 2005).

Mills et al. (2002) have developed methods through which organizations can apply these ideas in practice. This involves undertaking an analysis of the resources that have underpinned the activities of a business unit over an extended period of time (at least the previous three to five years). Six resource categories, which are not mutually exclusive, are used: tangible resources, knowledge resources skills and experience, systems and procedural resources, cultural resources and values, network resources and resources important for change. The resources are evaluated against three criteria: value, sustainability and versatility. Resources that individually or collectively score highly in these criteria are considered to be important resources. They are sources of existing or potential competitive advantage to the organization.

2.4. Operations Performance Objectives

Operations are judged by the way they perform. There are many individuals and groups doing the judging and there are many different aspects of performance on which the assessment is being made. The people doing the judging are called stakeholders and the aspects of performance they are using are called performance objectives. Broad stakeholder objectives form the backdrop to operations decision-making, and top management objectives provide a strategic framework, but running operations at an operational day-to-day level requires a more tightly defined set of objectives..

Slack et al. (2004) argue that there are five operations performance objectives: Cost: the ability to produce at low cost; Quality: the ability to produce in accordance with specification and without error; Speed: the ability to do things quickly in response to customer demands and thereby offer short lead times between when a customer orders a product or service and when they receive it.; Dependability: the ability to deliver

products and services in accordance with promises made to customers (e.g. in a quotation or other published information); Flexibility: the ability to change operations. Flexibility can comprise up to four aspects: the ability to change the volume of production, the ability to change the time taken to produce, the ability to change the mix of different products or services produced, the ability to innovate and introduce new products and services.

Quality is consistent conformance to customers' expectations, in other words, 'doing things right', but the things which the operation needs to do right will vary according to the kind of operation. When quality means consistently producing services and products to specification it not only leads to external customer satisfaction, but makes life easier inside the operation as well. Quality reduces costs- the fewer mistakes made by each process in the operation, the less time will be needed to correct the mistakes and the less confusion and irritation will be spread. Quality also increases dependability- increased costs are not the only consequence of poor quality (Slack, et. al., 2010). Bottom line is products/services have to be designed to meet customer needs and the process needs to be designed to produce the intended products consistently without error. This reduces cost and increases dependability since less time will be required to correct mistakes and less confusion and irritation to the customer (Reid & Sanders, 2010).

Cost often implies offering a product at a lower price, relative to the price of the competing products in the same market as a result of low cost of production. Low cost-strategy can result into high profit margins even at competitive price. This does not mean low quality but rather efficiency, reduced waste and increased productivity

(Reid & Sanders, 2010). To improve cost performance, performance has to improve in the other operations objectives of quality, dependability, speed and flexibility.

Dependability is the ability to deliver to the customer on time or as promised to save time and money. This ensures stability and no surprises. Speed involves minimizing the time between a customer asking for products or service and the customer receiving them. This assures availability and results to speed advantage. This often calls for operational efficiency, eliminating processes that do not save time. Technology has been instrumental in this together with flexible workforce to meet peak demand periods (Reid & Sanders, 2010).

Flexibility is essential to accommodate rapid environmental changes including customer needs and expectations. Flexible system are able to add new products that may be important to a customer or drop the products that are not doing well (product flexibility) and can also increase or decrease the amount produced to accommodate changes in demand (volume flexibility) (Slack, et. al., 2010). Organizations competing on flexibility find it hard to compete on speed as well because they need time to custom-make products to customer specifications. They cannot also compete on cost because it may take more resources to customize (Reid & Sanders, 2010).

2.5. Effect of Operational Strategies on Performance

A review of the existing literature shows that Prajogo and Goh (2005) conducted a study on the impact of operations management activities on operational performance in service organizations. Drawing from the responses of mostly operations managers and operations directors of a sample of 190 firms based in Australia, the results suggested that the performance of a service firm is influenced significantly by the antecedents of operations scheduling, service process, and logistics capabilities. The

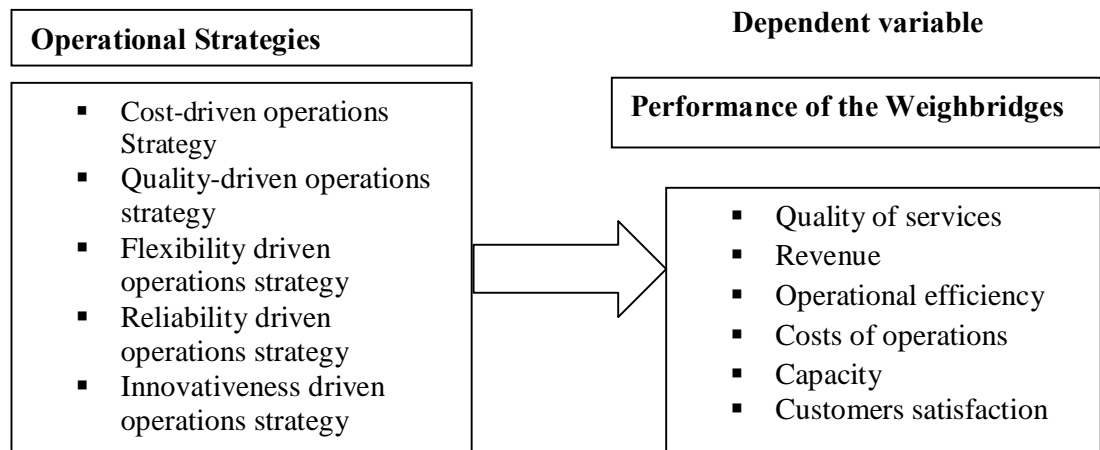
results of the regression analysis also found that operations scheduling and service process have a strong bearing on the firm's efficiency.

Ogolla (2013) conducted a study on the effect of the operations strategies on the performance of the motor vehicle assemblers. The study found that motor vehicle assemblers are facing stiff competition which has made them adopt some operations strategies to remain competitive in the market. The companies have adopted strategies on quality production, costs control, reliability, flexibility and innovativeness. The study found that the strategies have greatly improved profits, efficiency, quality of services to the customers, market share and the employee satisfaction.

Bosibori (2012) evaluated the operations strategies in Kenyan Airlines. The study found out that Kenyan airlines were found to be in the second stage of the Hayes and Wheelwright four-stage model; the Hayes and Wheelwright model traces the progressive role of operations from the negative stage 1 to the mature stage 4. According to this model, organizations should seek to be in stage four (externally supportive) where operations provide foundation for competitive advantage (Slack, et. al., 2010). Operations in stage 4 organizations are innovative and proactive and are driving the organization's strategy by being "one step ahead" of the competition. This ought to be the ultimate position for organizations that aspire to be outstanding in their performance and competitiveness. Bosibori (2012) also established that there are many challenges that are facing Kenyan airlines in formulating effective operations strategies but of the greatest impact are the environmental and technological challenges.

2.6. Conceptual Framework

The conceptual framework illustrates the interaction between independent variables and the dependent variable in the study (Mugenda & Mugenda 2003). In this study, the independent variables were; cost-driven operations strategy, quality-driven operations strategy, flexibility driven operations strategy, reliability driven operations strategy, innovativeness driven operations strategy while the dependent variable is performance of the weighbridges. The conceptual frame work is presented in the Figure 2.1 below.



Independent variables

Source: Author (2015)

Figure 1: Conceptual Framework

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

The chapter looked at the research methods that were employed in the study in order to achieve the objectives of the study. The chapter covers the research design to be adopted, population of study and sample size, data collection instrument and data analysis procedures.

3.2 Research Design

The study adopted cross-sectional descriptive survey design. Robson (2002) points out that descriptive study portrays an accurate profile of persons, events or situation. Furthermore, Chandran (2004) states descriptive study describes the existing conditions and attitudes through observation and interpretation techniques. Descriptive research design is one of the best methods for conducting research in human contexts because of portraying accurate current facts through data collection for testing hypothesis or answering questions to conclude the study (Robinson 2002, Chandran 2004).

The descriptive design was appropriate for this study since it helped in collecting data in order to answer the questions of the current status and describe the nature of existing conditions of the subject under study. Descriptive research design also facilitated the use of a questionnaire to collect both quantitative and qualitative data for the study. Thus the research design was appropriate to describe the relationship between operational strategies and performance of weighbridges in Kenya.

3.3 Study Population

A population is the total of all the individuals who have certain characteristics and are of interest to a researcher. Target population is defined as the total number of elements that are under investigation by a research study (Kothari, 2008). The study targeted the managers in the 10 weighbridges in Kenya. According to KeNHA (2014), there are 10 weighbridges with approximately 5 weighbridge cluster managers and 30 assistant managers.

Since the population was small the study adopted a census study approach. According to Cooper and Schindler (2007) a census is feasible when the population is small and necessary when the elements are quite different from each other. When the population is small and variable, any sample we draw may not be representative of the population from which it is drawn. Therefore it was appropriate for researcher to adopt a census method; hence the sample size was 35 respondents (5 weighbridge cluster managers and 30 assistant managers).

3.4 Data Collection

The study collected primary data through use of a questionnaire. The study sought to collect data from 5 weighbridge cluster managers and 30 assistant managers from the ten weighbridges across Kenya. The questionnaire had both closed and open-ended questions. Questionnaires provided a high degree of data standardization and adoption of generalized information amongst any population. They were useful in a descriptive study where there was need to quickly and easily get information from people in a non-threatening way. Flick (1998) holds that questionnaires are useful in establishing the number of people who hold certain beliefs and hence possible to gauge public opinion on an issue. The responses are

gathered in a standardized way, so questionnaires are more objective. Moreover, it is relatively quick to collect information using questionnaires. The questionnaire was administered by the researcher through drop and pick later method.

3.5 Data Analysis

The data collected by the questionnaire was edited, coded, entered into the SPSS software version 20 which also aided in the data analysis. This study generated qualitative and quantitative data. The qualitative data was generated from the open ended questions and was categorized in themes in accordance with research objectives and reported in narrative form along with quantitative presentation. Both descriptive and inferential statistics were adopted for the study. The quantitative data was analyzed using descriptive statistics which included frequency distribution tables and measures of central tendency (the mean), measures of variability (standard deviation) and measures of relative frequencies. The inferential statistics included a Pearson product-moment correlation coefficient which measured the strength of linear association between operational strategies adopted and the perceived performance of weighbridges in Kenya. The perception indicators of performance were increased quality of services, increased revenue, increased operational efficiency, reduced costs of operations, increased capacity and increased customer satisfaction. Data was presented using tables, charts and graphs.

CHAPTER FOUR: DATA ANALYSIS, RESULTS AND DISCUSSION

4.1 Introduction

This chapter presents the results and findings as analyzed from the data collected. The data analysis was based on the study objectives which sought to determine the perceived influence of operational strategies on the performance of weighbridges in Kenya. The responses were analyzed using both descriptive and inferential statistics and results were presented in tables, pie charts and bar graphs.

4.2 Response Rate

Table 4.1: Response Rate

Response Rate	Frequency	Percentage
Actual Response Rate	34	97.1
None Response	1	2.9
Total	35	100.0

The study targeted 35 respondents who included the weighbridge cluster managers and assistant managers. A total of 34 questionnaires were successfully filled in time for data analysis. This represented 97.1% of the total sample size. According to Mugenda and Mugenda (2003) a 50 percent response rate is adequate, 60 percent good and above 70 percent rated very well. The response rate of 97.1% was therefore considered appropriate to derive the inferences regarding the objectives of the research.

4.3. Respondents Profile

This section presents the demographic information of the respondents. The respondents' demographic information reflects the relevant attributes of the

population; it forms the basis under which the study can rightfully access the relevant information. The respondents' information captured includes: position in the weighbridges and number of years worked.

4.3.1 Position in the Weighbridge

The respondents were asked to indicate their position in the weighbridges. The study had targeted the weighbridge cluster managers and assistant managers.

Table 4.2: Position in the Weighbridge

Position	Frequency	Percent
Weighbridge Cluster Managers	4	11.8
Assistant managers	30	88.2
Total	34	100.0

The study shows that 88.2% of the respondents were assistant managers while 11.8% were weighbridge cluster managers. The study targeted the management staff since they are in a strategic position to articulate the perceived influence of operational strategies on the performance of weighbridges in Kenya.

4.3.2. Number of years worked in the Weighbridge

The respondents were asked to indicate the number of years worked in the weighbridges. The results are presented in Figure 4.1.

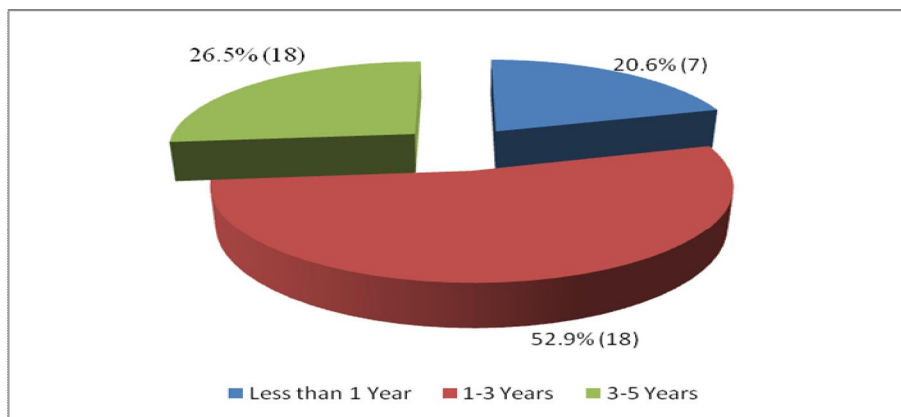


Figure 4.1: Number of years worked in the Weighbridge

The study results shows that majority of the respondents indicated that they had worked in the weighbridges for a duration of 1-3 years while 26.5% of the respondents had worked in the weighbridges between 3-5 years. The study shows that most the managers had worked in the weighbridges for over one year which means that they have been part of the change management that has been facilitating implementation of operational strategies in the weighbridges; hence they increased reliability of the information given.

4.4 Operational Strategies

In this section, the study sought to establish the operational strategies that KeNHA had adopted in the weighbridges in Kenya and the extent to which these strategies were being implemented.

4.4.1 Nature of Operational Strategies Adopted

The study sought to establish the kind of operation strategies that KeNHA had adopted in weighbridges in Kenya and the extent. A scale of 1-5 was used to interpret the results of the study. The scores ðnot at allð and ðsmall extentð were represented by mean score, equivalent to 1 to 2.5 on the continuous Likert scale (1 ð small extent ð 2.5). The scores of ðmoderate extentð were equivalent to 2.6 to 3.5 on the Likert scale (2.6 ð moderate extent ð 3.5). The score of ðgreat extentð and ðvery great extentð represented were equivalent to 3.6 to 5.0 on the Likert scale which means that the agreement was to a great extent. The findings are presented in Table 4.3.

Table 4.3: Kind of Operational Strategies Adopted

Description of the Operational Strategy	Mean	Std. Deviation
Top-down perspective: the operations strategy was derived from, and is supportive of the organization's business strategy- an operations strategy that the organization uses to realize its business strategy.	4.21	0.845
Bottom-up perspective: operations strategy emerged through a series of actions and decisions taken over time within operations.	5.00	0.000
Market-led perspective: operations strategy was developed in response to the market environment in which the organization operates.	1.32	0.475
Operations-led perspective: excellence in operations is used to drive the organization's strategy.	3.94	0.547

The study results in Table 4.3 show that weighbridges had adopted bottom-up perspective (operations strategy emerged through a series of actions and decisions taken over time within operations) to a great extent as shown by a mean score of 5.00. The respondents also revealed that weighbridges had adopted top-down perspective (the operations strategy was derived from, and is supportive of the organization's business strategy) and operations-led perspective (excellence in operations is used to drive the organization's strategy) to a great extent as shown by the mean scores 4.21 and 3.94 respectively. However, the respondents reported that they had adopted market-led kind of operation strategy to a small extent as shown by the mean score of 1.32 on the likert scale.

4.4.2. Operational Strategies Adopted in the Weighbridges

The respondents were asked to indicate the extent to which various operation strategies had been adopted in the weighbridges in Kenya. The study results are presented in Table 4.4.

Table 4.4: Operational Strategies Adopted in the Weighbridges

Operational Strategies	Mean	Std. Deviation
Cost driven operations strategy	1.44	0.786
Quality-driven operations strategy	4.32	0.475
Flexibility driven operations strategy	4.24	0.699
Reliability driven operations strategy	3.76	0.741
Innovativeness driven operations strategy	4.79	0.410

The study findings show that the respondents indicated that innovativeness driven operations strategy, quality-driven operations strategy, flexibility driven operations strategy and reliability driven operations strategy had been adopted to a great extent as shown by the mean score of 4.79, 4.32, 4.24 and 3.76 respectively. However, the respondents reported that cost driven operations strategy had only been adopted to a small extent as shown by the mean score of 1.44 on the likert scale.

4.4.3. Implementation of Strategies in the Weighbridges to Achieve the Intended Objectives

The respondents gave details on how they were implementing the operational strategies in the weighbridges to achieve the intended objectives; they indicated that they endeavored to adhere to standard operating procedures and comply to the KeNHA operations manual for weighbridges. The respondents also indicated that they had regular audits and meetings to push through management agenda; ascertain effectiveness of the system. KeNHA had also enhanced usage of technology to reduce human manipulation and corruption practices. The respondents further indicated that the organization encouraged junior staff to take initiative and adhere to operations manual; the organization also created capacity by regular training of staff on work ethics and encouraging employee involvement in decision making.

4.4.4 Reasons for Adopting Operation Strategies in the Weighbridges

The study sought to determine the reasons that prompted KeNHA to adopt operation strategies in the weighbridges. A five point likert scale was used to interpret the responses whereby the scores of 'strongly disagree' and 'disagree' were represented by mean score, equivalent to 1 to 2.5 on the continuous Likert scale (1 'disagree' 2.5). The scores of 'neutral' were equivalent to 2.6 to 3.5 on the Likert scale (2.6 'neutral' 3.5). The score of 'agree' and 'strongly agree' represented were equivalent to 3.6 to 5.0 on the likert scale which shows a strong agreement with the statement.

Table 4.5: Reasons for Adopting Operation Strategies in the Weighbridges

Reasons	Mean	Std. Deviation
To improve quality of the services offered at the weighbridges	4.47	0.507
To improve its operations processes	5.00	0.000
To reduce costs of operations	1.74	0.666
To meet the needs and expectations of customers	3.44	0.613
Improve efficiency at the weighbridges	4.59	0.609
To increase capacity of the weighbridges	4.59	0.500

The study results show that the respondents agreed that the need to: improve operations processes; improve efficiency at the weighbridges; increase capacity of the weighbridges; and need to improve quality of the services offered at the weighbridges prompted KeNHA to adopt operational strategies as shown by the mean scores: 5.00, 4.59, 4.59 and 4.47 respectively. However, the respondents were neutral on whether need to meet the needs and expectations of customers (3.44) had prompted KeNHA to adopt operational strategies while they disagreed that the need to reduce costs of operations was a reason to adopt operational strategies as shown by a mean score of 1.74 on the likert scale.

4.4.5. Other Reasons

The study inquired on other reasons that had influenced KeNHA to adopt operation strategies in the weighbridges. The respondents stated that KeNHA adopted operation strategies in order to ensure compliance and conform to axle load limits as set by Kenyan government and East Africa Community at large; need for harmonization across the various weighbridges; requirements by the financiers of road projects in Kenya i.e. World Bank and IMF; and to reduce corruption at weighbridges. The respondents further stated that synchronization to best practices in other parts of Africa and Europe and pressure from stakeholders (truck owners and truck drivers) also influenced adoption of operational strategies in the weighbridges.

4.4.6. Extent of Challenges in the Implementation of Operation Strategies

The respondents were asked to indicate the extent to which they experienced challenges in the implementation of operation strategies in the weighbridges. The findings are presented in Figure 4.2.

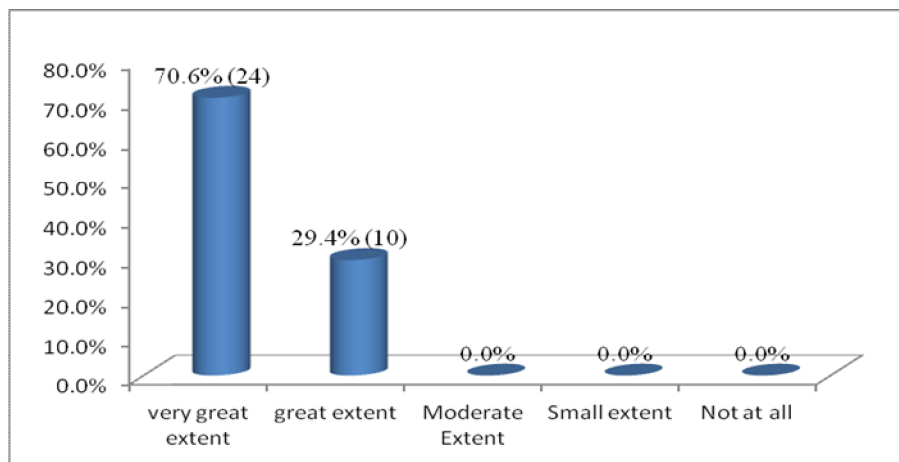


Figure 4.2: Extent of Challenges in the Implementation of Operation Strategies

Results in Figure 4.2 shows that majority of the respondents (70.6%) revealed that they had experienced challenges in the implementation of operation strategies in the

weighbridges to a very great extent. A further 29.4% of the respondents indicated that they experienced the challenges to a great extent.

4.4.7 Challenges Affecting Implementation of Operation Strategies

The study sought to establish the challenges affecting implementation of operation strategies in the weighbridges in Kenya. The study results are presented in Table 4.6.

Table 4.6: Challenges Affecting Implementation of Operation Strategies

Challenges	Mean	Std. Deviation
Lack of adequate funding	1.18	0.387
Lack of competent staff/skills	4.06	0.694
Lack of good leadership/management	3.26	0.864
Organizational culture	4.50	0.663
Lack of employees commitment	4.82	0.521
Lack of tactical operational plans	1.53	0.748

The study findings show that the respondents agreed that lack of employees commitment; organizational culture; and lack of competent staff/skills affected implementation of operation strategies in the weighbridges. However, the respondents were neutral on whether lack of good leadership/management affected implementation of operation strategies in the weighbridges. On the other hand, the respondents disagreed that lack of tactical operational plans and lack of adequate funding affected implementation of operation strategies in the weighbridges in Kenya as shown by the mean scores 1.53 and 1.18 respectively.

4.5 Operation Strategies and Performance

In this section, the study sought to determine the perceived influence of operational strategies on the performance of weighbridges in Kenya.

4.5.1. Operations Performance Objectives and Business Objectives

The study sought to establish the extent to which operations performance objectives were aligned and supported by the business objectives. The findings are presented in Figure 4.3.

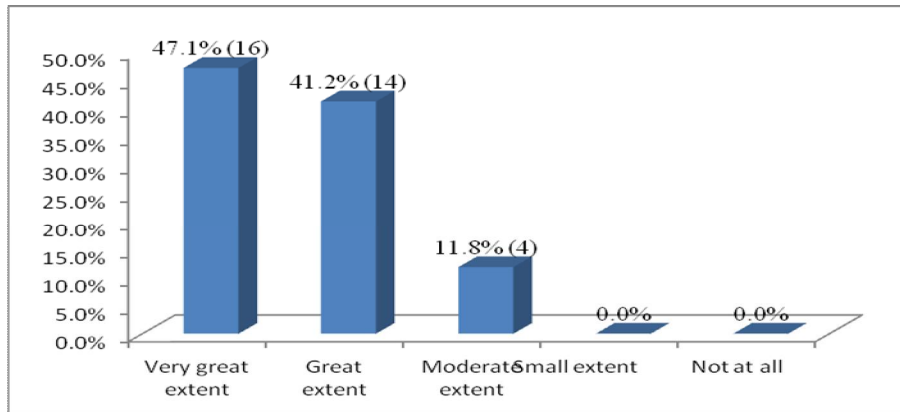


Figure 4.3: Operations Performance Objectives and Business Objectives

Results in Figure 4.3 show that 47.1% of the respondents revealed that operations performance objectives were aligned and supported by the business objectives to a very great extent while 41.2% indicated to a great extent.

4.5.2 Effect of Operation Strategies on Performance of Weighbridges in Kenya

In this section, the study sought to establish the effect of operation strategies on performance of weighbridges in Kenya. The study results are presented in Table 4.6.

Table 4.7: Effect of Operation Strategies on Performance of Weighbridges in Kenya

	Mean	Std. Deviation
The operation strategies have increased the revenue collected in the weighbridges due to increased compliance	4.35	.691
The operation strategies have enhanced the quality of services offered at the weighbridges.	4.68	.475
Has improved operational efficiency e.g. Time taken to weigh one truck at the weighbridges	4.76	.431
Has reduced costs of operations at the weighbridges	1.71	.579

Has improved customers satisfaction	3.59	.783
Has increased the capacity of the weighbridges	4.50	.615

The respondents indicated that operational strategies had improved operational efficiency, for example, time taken to weigh one truck at the weighbridges. They also agreed that the operation strategies had enhanced the quality of services offered at the weighbridges; had increased the capacity of the weighbridges; increased the revenue collected in the weighbridges due to increased compliance and improved customers satisfaction; this is shown by a mean score of 4.76, 4.68, 4.50, 4.35 and 3.59 respectively. The respondents however disagreed that operational strategies had reduced costs of operations at the weighbridges as shown by the mean score of 1.71 on the likert scale.

The respondents further stated that implementation of operational strategies in the weighbridges had led to higher levels of compliance of axle load limits; increased stakeholder confidence for good service and fairness at the weighbridges; and reduced corruption. Moreover, the respondents indicated that it had led to improved Innovations factor ó hence less manipulation by humans; and corruption tendencies; enhanced fast turn round time, less queuing at the weighbridges; improved attitude of staff at work and enhanced higher levels of employees commitment compared to the previous years.

Table 4.8: Extent Operation Strategies Influence Performance

Extent	Frequency	Percent
Very great extent	20	58.8
Great extent	12	35.3
Moderate extent	2	5.9
Total	34	100.0

On overall, majority of the respondents (58.8%) indicated that the implementation of operation strategies influenced performance of the weighbridges to a very great extent. This was supported by 35.3% of the respondents who revealed that operation strategies influenced performance of the weighbridges to a great extent.

4.6. Relationship between Operational Strategies and Performance of Weighbridges in Kenya

Table 4.9: Pearson Correlation Results

		Performance	Cost Driven	Quality-driven	Flexibility driven	Reliability driven	Innovativeness driven
Performance	Pearson Correlation	1					
	Sig. (2-tailed)	.					
Cost Driven	Pearson Correlation	0.122	1				
	Sig. (2-tailed)	0.493	.				
Quality-driven	Pearson Correlation	0.189	.418(*)	1			
	Sig. (2-tailed)	0.024	.014	.			
Flexibility driven	Pearson Correlation	0.510(*)	.247	.403(*)	1		
	Sig. (2-tailed)	0.002	.160	.018	.		
Reliability driven	Pearson Correlation	0.250	.288	.395(*)	.403(*)	1	
	Sig. (2-tailed)	0.013	.099	.021	.018	.	
Innovativeness driven	Pearson Correlation	0.396(*)	.290	.352(*)	.702(**)	.334	1
	Sig. (2-tailed)	0.021	.096	.041	.000	.053	.
	N	34	34	34	34	34	34

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

* Correlation is significant at the 0.05 level (2-tailed).

The Pearson correlation results show that there was a high, positive and statistically significant relationship between performance of weighbridges in Kenya and flexibility driven operations strategy as shown $r = 0.510, p = 0.002 < 0.05$). This implies that a unit increase in flexibility driven operations strategy would always increase performance of weighbridges in Kenya at a unit of 0.510. The study further established a positive and statistically significant association between performance of weighbridges in Kenya and innovativeness driven operation strategy ($r = 0.396, p = 0.021$); reliability driven operation strategy ($r = 0.250, p = 0.013 < 0.05$); quality-driven strategy ($r = 0.189, p = 0.024 < 0.05$). An increase in any of these operation strategies would significantly increase performance of weighbridges in Kenya.

CHAPTER FIVE: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1. Introduction

This chapter provides a summary of findings, conclusions and recommendations of the study based on the objectives of the study. It entails a synthesis of key issues of the objectives of the study as deduced from the entire research.

5.2. Summary of Findings

The study established that the kind of operational strategies adopted in the weighbridges had greatly emerged through a series of actions and decisions taken over time within operations. The study also established the need for excellence in operations was drove the organization's strategies and that the operations strategies were derived from, and were supportive of the organization's business strategy.

On the operational strategies adopted in the weighbridges, the study found out that innovativeness driven operations strategy, quality-driven operations strategy, flexibility driven operations strategy and reliability driven operations strategy had been adopted to a great extent. The respondents further revealed that they endeavored to adhere to standard operating procedures and comply to the KeNHA operations manual for weighbridges. In order to achieve this, they had regular audits and meetings to push through management agenda and ascertain effectiveness of the system. KeNHA also enhanced usage of technology to reduce human manipulation and corruption practices. The organization also created capacity by regular training of staff on work ethics and encouraging employee involvement in decision making.

On the reasons for adopting operation strategies in the weighbridges; the study found out that the need to: improve operations processes; improve efficiency at the

weighbridges; increase capacity of the weighbridges; and need to improve quality of the services offered at the weighbridges prompted KeNHA to adopt operational strategies. Other reasons included need to ensure compliance and conform to axle load limits as set by Kenyan government and East Africa Community at large; need for harmonization across the various weighbridges; requirements by the financiers of road projects in Kenya i.e. World Bank and IMF; pressure from stakeholders; and need to reduce corruption at weighbridges.

The respondents however revealed that they experienced challenges in the implementation of operation strategies in the weighbridges to a great extent. The challenges included lack of employees' commitment; organizational culture; and lack of competent staff/skills. However, the respondents disagreed that lack of tactical operational plans and lack of adequate funding affected implementation of operation strategies in the weighbridges in Kenya.

On the perceived influence of operational strategies on the performance of weighbridges in Kenya; the study found out the operational strategies had improved operational efficiency (for instance, time taken to weigh one truck at the weighbridges); enhanced the quality of services offered at the weighbridges; had increased the capacity of the weighbridges; increased the revenue collected in the weighbridges due to increased compliance and improved customers satisfaction. However, the respondents disagreed that operational strategies had reduced costs of operations at the weighbridges. Other benefits as stated by the respondents included: higher levels of compliance of axle load limits; increased stakeholder confidence for good service and fairness at the weighbridges; and reduced corruption; improved innovations and use of technology ó hence less manipulation by humans; and

corruption tendencies; enhanced fast turn round time, less queuing at the weighbridges; and improved employees commitment compared to the previous years.

The respondents revealed that the operations performance objectives were aligned and supported by the business objectives to a great extent. On overall, majority of the respondents indicated that the implementation of operation strategies influenced performance of the weighbridges to a great extent. The Pearson correlation results support the above findings as it was found out that there was a high, positive and statistically significant relationship between performance of weighbridges in Kenya and flexibility driven operations strategy, innovativeness driven operation strategy, reliability driven operation strategy, quality-driven strategy. This implies that a unit increase in any of these operation strategies would significantly increase performance of weighbridges in Kenya.

5.3. Conclusions

The study concludes that KeNHA have largely adopted innovativeness driven operations strategy, quality-driven operations strategy, flexibility driven operations strategy and reliability driven operations strategy to a great extent. The successfully implement these strategies, the organization conducts regular audits and meetings to push through management agenda and ascertain effectiveness of the system. KeNHA also enhanced usage of technology to reduce human manipulation and corruption practices. There has also been regular training of staff employee to enhance their capacity and work ethics.

The operational strategies adopted in the weighbridges had greatly emerged through a series of actions and decisions taken over time within operations and the need for excellence in operations at the weighbridges. Besides ensuring compliance to axle

load limits as set by Kenyan government and East Africa Community; the need to improve operations processes, improve efficiency at the weighbridges, increase capacity of the weighbridges, and need to improve quality of the services offered at the weighbridges greatly prompted KeNHA to adopt operational strategies.

The study also concluded that the implementation of operational strategies on weighbridges in Kenya had improved operational efficiency in terms of the time taken to weigh one truck at the weighbridges; enhanced the quality of services offered at the weighbridges; had increased the capacity of the weighbridges; increased the revenue collected in the weighbridges due to increased compliance and improved customers satisfaction. However, there were some challenges that hindered effective implementation of operation strategies in the weighbridges. These challenges include: lack of employees' commitment, organizational culture, and lack of competent/skilled staff.

5.4 Recommendations

The rapid increase in the compliance with regard to the axle load prescribed weights is largely attributed to the implementation operational strategies at the weighbridge along the corridor. The study recommends for continued improvements at weighbridges in terms of increased use of technology, enhancing speed (high speeds weigh) and increasing capacity in the weighbridge in order to increase compliance with the axle load limits and further enhance efficiency of road transport along the Northern Corridor by eliminating unnecessary congestion at the weighbridges.

The study established that the implementation of operation strategies in the weighbridges was being hindered to some extent due to lack of employees' commitment; organizational culture; and lack of competent/skilled staff. In this regard

the study recommends for increased and regular training of the staff at the weighbridge in order to equip them with the right skills and also change their attitude. Attitude change can also be enhanced through change management in the organization.

5.5 Suggestion for Further Research

This study targeted the managerial staff in the weighbridges. The researcher suggests that a similar study be conducted covering a larger scope; that is; the future study should consider views and opinions of other stakeholders such as the truck owners and truck drivers.

The study also suggests that; since the reforms in the weighbridges are ongoing; more operational strategies may be adopted with time. In this regard, the study recommends for more periodical studies to be conducted so as to ascertain whether there is increased improvement of the operations at the weighbridges in Kenya.

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APPENDICES

Appendix I: Questionnaire

Instructions: Please read the answer the questions as appropriately as possible. It is advisable that you answer or fill in each section as provided. Tick () where appropriate.

Section A: Respondents Profile

1. Kindly indicate your Position

2. Indicate the number of years worked in the organization

- Less than 1 Year 1-3 Years 3-5 Years
 Over 5 Years

Section B: Operational Strategies Adopted

3. Which kind of operation strategies has KeNHA adopted in weighbridges in Kenya and to what extent? Use a scale of 1-5 where: 5 is to a very great extent, 4 is to a great extent , 3 is to a moderate extent, 2 is to a small extent while is not at all.

Description of the Operational Strategy	1	2	3	4	5
Top-down perspective: the operations strategy was derived from, and is supportive of the organization's business strategy- an operations strategy that the organization uses to realize its business strategy.					
Bottom-up perspective: operations strategy emerged through a series of actions and decisions taken over time within operations.					
Market-led perspective: operations strategy was developed in response to the market environment in which the organization operates.					
Operations-led perspective: excellence in operations is used to drive the organization's strategy.					

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7. To what extent do you experience challenges in the implementation of operation strategies in the weighbridges?

Very great extent [] Great extent [] Moderate extent []
 Small extent [] Not at all []

8. Which of the following challenges affect implementation of operation strategies in the weighbridges? Use a scale of 1 to 5 where 1 is strongly disagree, 2 is disagree, 3 is Neutral, 4 is agree and 5 is Strongly agree

Challenges	1	2	3	4	5
Lack of adequate funding					
Lack of competent staff/skills					
Lack of good leadership/management					
Organizational culture					
Lack of employees commitment					
Lack of tactical operational plans					
Other (specify)í í					

Section C: Operation Strategies and Performance

9. To what extent are the operations performance objectives aligned and supported by the business objectives of KeNHA?

Very great extent [] Great extent [] Moderate extent []
 Small extent [] Not at all []

10. To what extent do you agree with the following statements on the effect of operation strategies on performance of weighbridges in Kenya? Use a scale of 1 to 5 where 1 is strongly disagree, 2 is disagree, 3 is Neutral, 4 is agree and 5 is Strongly agree

Statements on Performance	1	2	3	4	5
The operation strategies have increased the revenue collected in the weighbridges due to increased compliance					
The operation strategies the quality of services offered at the weighbridges					
Has improved operational efficiency e.g. Time taken to weigh one truck at the weighbridges					
Has reduced costs of operations at the weighbridges					
Has improved customers satisfaction					
Has increased the capacity of the weighbridges					

11. How else has the operation strategies influenced the performance of weighbridges in Kenya? í
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12. On overall, to what extent has implementation of operation strategies influenced performance of the weighbridges?

- Very great extent [] Great extent [] Moderate extent []
 Small extent [] Not at all []

THANK YOU FOR YOUR TIME

Appendix II: List of Weighbridges in Kenya

1. Mtwapa Weighbridge
2. Mariakani Weighbridge
3. Athi River Weighbridge
4. Juja Weighbridge
5. Isinya Weighbridge
6. Gilgil Weighbridge
7. Webuye Weighbridge
8. Busia Weighbridge
9. Rongo Weighbridge
10. Mobile Weighbridge