

**ORGANISATIONAL FACTORS INFLUENCING ADOPTION OF LEAN
LOGISTICS: A CASE OF VISUAL WORKPLACE PROJECTS IN
NAIROBI BOTTLERS LIMITED, KENYA**

BY

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DECLARATION

This research project report is my original work and has not been presented for any academic award in any university.

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DEDICATION

This research project is dedicated to my parents, Marcus Odok and Jenipher Odok, my sister Lilian Odok and brothers Christopher and Evans Odok.

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ABBREVIATIONS AND ACRONYMS

EAC:	East African Community
GDP:	Gross Domestic Product
JIT:	Just In Time
KEU:	Kenya Economic Update
NBL:	Nairobi Bottlers Limited
PM:	Project Managers
PMO:	Project Management Organisations
PMP:	Project Management Professionals
VC:	Visual Communication
VUCA:	Volatile, Uncertain, Complex and Ambiguous

ABSTRACT

In spite of the investment in lean logistics projects in Kenya by government and private organisations, stupendous wastes and losses continue to be experienced in transport and inventory management. Inefficiencies below middle income countries continue to be recorded according to World Bank's Kenya Economic Update (KEU). It is therefore imperative that the organizational factors influencing adoption of the already existing continuous change projects be studied. Once knowledge is acquired, mitigation measures should be applied to prevent further wastage, and foster value added lean management. If this is not done, colossal losses and ultimately affected bottom-lines await. This research report studied organizational factors influencing adoption of lean logistics: A case of visual workplace projects in Nairobi Bottlers Limited. Four organizational factors that influenced visual workplace projects in NBL were studied, they were; training, communication, organisation culture and leadership. The study was delimited to visual workplace projects in NBL, and the five study variables. Empirical study of the literature was widely done and the gaps documented. It was built on Womack and Jones framework of lean thinking, from where a conceptual framework that showed the nexus of interrelationship between study variables were developed. The study used descriptive survey design with a target population of 220 individuals in logistics competency who were affected by the visual workplace projects. This comprised of drivers, forklift operators, load builders, checkers, stock controllers, administrative assistants, fleet technicians and logistics team leaders. Stratified sampling method was used to select the sample of respondents from the target population. Using Krejcie and Morgan table for determining sample size, 136 individuals were selected to take part in the study. A six level data collection questionnaire, comprising of closed questions only was utilized. Split half method was used to measure reliability which yielded a value of 0.9065. Content and Construct Validity was determined through a review of the questionnaire by two colleagues who were experts and practitioners of lean logistics. Pilot testing was conducted with 14 individuals who were not included in the final survey. Collated data was cleaned, decoded, organized and analysed using SPSS software version 21. The software analysed the data through descriptive and inferential statistics. It was found that all the organizational factors studied had moderate to weak relationship with the dependent variable. Additionally, there was a statistically significant relationship between communication, organisation culture and leadership and adoption of lean logistics, with spearman's correlation coefficients and p values of; 0.455 and $0.000 < 0.05$, 0.208, and $0.030 < 0.05$ and 0.203 and $0.035 < 0.5$ respectively. However, training had a weak and positive relationship with lean logistics that was not statistically significant, 0.015 and $0.538 > 0.05$. This meant that the correlation could have been due to random chance and further studies were recommended to uncover more facts. Further, it was recommended that training needs assessment be done prior to any training program, use of visual communication be utilized after a robust, participative and inclusive training process and initiatives to change organisation culture to foster support and commitment from leadership to buy in shop floor support for lean logistics success be implemented.

CHAPTER ONE

INTRODUCTION

1.1 Background to study

The idea of waste reduction and efficient operation was not entirely new before the 90's; its practice was informal and unconscious. However, the first person to fully integrate, and operationalize this entire idea was Henry Ford, an established American industrialist. He transformed his automotive production system by combining interchangeable parts with standard operations that included moving conveyors to create what he termed as "flow production", a system he believed reduced unnecessary handling. This philosophy later grew to be a dominant contributor to "mass production" (Batchelor, 1994). Producing a lot meant increasingly lower unit costs, and was a phenomenon that gained consensus widely. Henry Ford was able to create inventories every few days, however, his inability to create variety soon presented a huge challenge. The model, color, and specification limitations meant that customers did not have choices or preferences. Soon the world wanted variety, and Ford seemed to lose his way, other competitors responded by creating variety of models, with different options and preferences. But them too had their own share of problems, for instance, manufacturing methods and production systems regressed towards process areas resulting to longer throughput times. To solve this, industries acquired larger plants that ran faster, lowering process costs but unintentionally increasing throughput times and inventories. Additionally, the time lags between process steps and the complex routines required even more man power and controls (Batchelor, 1994).

Taiichi Ohno, Kiichiro Toyoda among other industrialists observed the situation in the 1930s and they figured out that simple incremental innovations on a regular basis could make it more promising for better process flow and varied production. This culminated to Toyota Production System (TPS); it shifted the focus from individual plant's operation and performance to flow of products from the point of sourcing to the final point of consumption, a total process that entailed a wholesome and systematic way of managing every transaction in the organisation. This was a major shift towards lean, where the right sizing machines, self-monitoring machines, and a process of notification, would ensure

production at low costs, high variety, high quality, and efficient throughput times, in order to respond to the ever changing desires of customers (Liker and Franz, 2011). Toyota Production System today is inarguably the leading lean example in the world, owing to its rising sales and market share across the globe, not to mention its hybrid technology. This shows the powerful extent of lean. The success has over the years created increasing demand for knowledge about lean management, with thousands of articles exploring the subject (Womack and Jones, 2013).

Industries ranging from healthcare to fast foods and customer service, have adopted TPS philosophy, regardless of the fierce debate on its universality, relevance, and applicability across all industries (Moore & Gibbons, 1997). Whether lean is universal or not, considering the rapid advancement of technology, globalized communication and tough competition in business today, one thing that is apparent is that old and familiar ways of management can no longer produce valuable results that correspond to a highly volatile, uncertain, complex and ambiguous changing environment (Kinsinger, 2006). The success of organisations and businesses depend of the ability and agility to react, operate and adopt to change, this has become a competitive advantage. Successful organisations therefore have no choice but to make change a priority, and this requires powerful methods and tools.

In response to these business dynamics, pursuit of powerful lean tools, techniques and methods to turn around businesses has taken center stage. Peters and Waterman (2012) argue that excellent organisations do not work towards achieving excellence rather they pursue continuous improvement whose by-products are innovation and consequently excellence (Peters, and Waterman, 2012). According to Ohno (1988) efficiently adopted continuous management tools are the fundamentals of lean. These are further supported by stable and strong organisation structures (Ohno, 1988). Process improvement tools, and visualization tools, particularly, Kaizen (A continuous improvement process where once a problem is identified, a team is constituted from different functions to think together and find solutions to the problem on a regular basis) and 5S (A system of visualization based on the principle that organisation of the workplace is indispensable in ensuring job efficiency) have therefore gained use in most organisations that adopt lean.

Logistics industry has not been spared in attempt to turnaround their performance too. They continuously and consistently are in pursuit of quality initiatives like just in time (JIT), 5S, Kaizen and Six Sigma to improve their operations; this has culminated into the concept of “lean logistics”. These programs have certainly brought down the cost of operations, by improving running costs (maintenance, tyres, and fuel), truck utilization, inventory and administration costs (George, 2003). The concept of lean logistics is therefore considered appropriate to adapt in warehousing, distribution, and fleet functions, with the aim of improving service delivery and performance (Russell and Taylor, 2009). When applied to logistics, lean has the potential of adding value to the day to day activities that are repetitive and very essential, offering high speed in the routines through elimination of wastes related to delays, excess product handling, cycle counts and inventory rotation, and consequently lowering operational cost (George, 2003). However, considering the major differences between manufacturing and Logistics or service industries, implementing lean maybe confronted with a lot of difficulties relating to working standards, working hours, and people related issues, all which are subject to variability.

Kenya’s increased focus on logistics, particularly, inventory, transportation and administration aspects has borrowed heavily from lean tools, especially Kaizen and 5s. The decision is driven by the fact that, as in other countries in Africa, the logistical conditions in Kenya induce high operating costs. Poor road conditions increases the cost of repair and maintenance (In Africa tyres wear thrice as fast as in Europe). Further efficiency of fuel use is affected by; driving behavior (driver competency), the age of trucks and road terrains. Therefore, in Kenya, the average running costs range from 60% to 75% as compared to an average of 60% in Europe. The breakdown of the cost structure for a deployed truck gives an average of 8% of the total cost on labour, 1% on communication, 60% on fuel, 40% on repair and maintenance, and 7% on indirect overhead. This leaves around 20% of profit margin, and has raised an urgent need to enhance logistics service capabilities and efficiency (World Bank, 2015).

At Nairobi bottlers limited, continuous change projects aimed at improving employee focus on business goals, management of quality, speed and cost of transaction and

employee safety throughout the organisation have been intensified and interesting changes have occurred variedly. Of interest to this study are the visual workplace projects, specifically, visualization and process improvement tools (Kaizen and 5S), whose objectives are to create a visually organized, productive and pleasant workplace where everything is clear and visually controlled (Ravikumar, Marimuthu & Chandramohan, 2009) and therefore contributing towards lean logistics.

1.2 Statement of the problem

The application of lean in logistics has been a trend in supply chain management in recent years. The unique and different continuous change programs have been supported differently with considerable amount of investments towards them (Asif and Mandviwalla, 2005). The investments have noticeably brought change in the way fleet, distribution, order, inventory and 3PL is managed (Hutt and Speh 2010). Visual workplace in form of 5S in particular has resulted in better organisation of workplace, optimized transactions, process modification and standards of work. The application of Kaizen has helped to solve problems and make decisions on transportation and work based conflicts, based on gradual steps and implementation of tasks. Anchored on principles of small improvements, consistency and standardization, visual workplace projects have revolutionized the way organisations are run, and therefore, competitiveness. In Europe alone, an average of 20.632 meters and 1,700 minutes of transportation is saved as a result.

Inspite of the significant progress brought by lean logistics, the country's logistics indicators remain below the levels found in middle income economies like Nigeria (World Bank, 2005). There seems to be very little efficiency in logistics operations, the cost of transport has not reduced significantly, and customers are endlessly lamenting about poor services offered by transporters and third party logistics (3PL). A case in point is Nairobi Bottlers limited, according to the NBL year to date (YTD) Distribution performance report, inclusive of the month of September 2016, fuel usage amounting to Kshs.6.22 million was used against a target spending of Kshs.6.82 million. Drivers pay and allowances was Ksh.3.85 million against a target of Ksh.2.92 million and repair and maintenance (R&M) cost shot to Ksh.2.26 million against a target of Kshs.1.38 million.

The overall cost to serve (CTS) YTD was Kshs.14.40 million against a planned rolling estimate of Kshs.14.11million.

There is therefore an urgent call to explore and investigate organizational factors that are important components for successful adoption of lean logistics. To that extent, this research examines four major organizational factors that influence adoption of lean in logistics.

1.3 Purpose of the study

The purpose of this research was to investigate organizational factors influencing adoption of lean logistics; a case of visual workplace projects in Nairobi Bottlers Limited, Kenya

1.4 Objective of the study

The study was guided by the following objectives

- 1 To assess how training influences adoption of lean logistics in visual workplace projects
- 2 To examine how communication influences adoption of lean logistics in visual workplace projects
- 3 To investigate the extent to which organization culture influences adoption of lean logistics in visual workplace projects
- 4 To establish how leadership influences adoption of lean logistics in visual workplace projects

1.5 Research Questions

- 1 How does training influence adoption of lean logistics in visual workplace projects?
- 2 How does communication influence adoption of lean logistics in visual workplace projects?
- 3 To what extent does organisation culture influence adoption of lean logistics in visual workplace projects?
- 4 How does leadership influence adoption of lean logistics in visual workplace projects?

1.6 Significance of the study

It is hoped that this study will generate knowledge of organisation factors that have more influence on adoption of lean logistics in visual workplace projects and which can be managed by supply chain firms. It is also hoped that the study will be a critical contributor to the body of knowledge on the four organizational factors studied here and how they influence lean logistics. The knowledge would assist in future research on the subject. Finally, it is hoped that the study will influence development of policies to guide project and program managers involved in visual workplace projects.

1.7 Delimitations of the study

This study was delimited to visual workplace projects in Nairobi Bottlers Limited plant in Embakasi, Nairobi, Kenya. It was delimited to 5S and Kaizen projects in warehouse, distribution and fleet management capabilities. The project was selected because of heavy investment in the four organisation factors studied.

1.8 Limitations of the study

The study was faced by a number of limitations: The period of data collection was met by unrepresented high deliveries and this meant that most drivers were away in trade, fleet employees were busy repairing trucks for availability, warehouse employees were occupied with stock management, loading and offloading activities and team leaders were held up in meetings and conferences. These limitations were minimized through frequent communication to set up appropriate and best periods and timelines for data collection.

There were also fears and suspicion towards responding to questions, especially for shop floor employees who were then having teething problems with management concerning their Collective Bargaining Agreement (CBA). This was overcome by prior explanation on the purpose of the study, and producing transmittal letter for backup.

1.9 Assumptions of the study

It was assumed that employees taking part in the study were present during the initiation process of the MDWT (Mission Directed Work Teams) project in quarter two of the year 2014, and were present throughout the short lifespan of the project that became inactive

late 2015. It was also assumed that the targeted respondents were willing to participate in the survey and questions were answered genuinely.

1.10 Definitions of significant terms used in the study

5S: Refers to a lean management tool whose five initials start with letter “S”, describing a system of Sorting, Straightening, Shining, Standardizing, and Sustaining an organized and ideal working environment that remove wastes associated with delays, safety, and compliance among others

Communication: Refers to the process of sending and receiving information through words, signs or behaviors to exchange or express ideas, feelings or thoughts to other people.

Kaizen: Refers to business process involving small and continuous changes that foster improvement of working practices and efficiency

Leadership: Refers to the act of setting direction, inspiring and influencing people towards a specific goal in an organisation.

Lean logistics: Refers to a way of recognizing and eliminating wasteful activities from logistics in order to increase speed of transaction and improve the bottom line.

Logistics: Refers to a market linked system that links the body of demand and supply. It is the link between the manufacturer and the end users. It is concerned with the movement of products at the right time, cost and quantity

Organisation Culture: Refers to a system of shared values, attitudes, assumptions and beliefs that govern the interaction of employees in the organisation. They influence the behavior of people in the organisation and dictate how they act, dress or perform their work.

Training: It is the activity of imparting skills about workings of a system, process, project or program. It includes acquisition of skills or expertise that enables individuals to interpret information, and apply appropriately.

Visual Workplace: Refers to visual display of information to create a workplace that is organized and where everything is clear and visually controlled. It includes signs, photographs, graphs, charts, drawings, images and artwork.

Visual Workplace Projects: Refers to a system that provide simple, visual answers on such issues like: what is needed to perform a task safely and effectively, the requirements for specific tasks, and how and what to measure against expectations for efficient output.

1.11 Organisation of the study

The study is organized into five chapters. Chapter One discusses the background of the study in which the context and concepts are discussed. It gives direction for the study through stating the objective of the study, the significance, delimitation, assumptions and limitations. Chapter Two discusses the empirical and theoretical literature on organizational factors and how they influence lean logistics; it also discusses the Conceptual Framework and research gap. Chapter Three covers research methodology, research design, target population, samplings size, sampling procedure, research instruments, validity and reliability of research instruments, methods of data collection, procedures for analysis, and ethical considerations. Chapter Four covers data analysis, data presentation and data interpretation while chapter Five summarizes the study findings, discusses the research findings, draw conclusions, recommendations and suggests areas of further research.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter covers the empirical review of literature on the following four organizational factors; training, communication, organisation culture, and leadership and their influence on adoption of lean logistics in visual workplace projects. The review helped to anchor the study to the theoretical framework and identification of gaps in the empirical studies from where conceptual framework was formulated.

2.2 The Concept of Lean Logistics

Logistics entails availing resources at the right time, place, cost and quantity. It entails movement of physical products, flow of information and storage of materials (Rushton 2009). According to Hutt and Speh (2010), logistics is a subset of supply chain that is involved in planning, coordinating and monitoring efficient and effective flow of goods and materials and management of information between two or multiple points of delivery.

Lean is a word derived from a Japanese word “muda” which means waste. These are activities that have no value in the organisation (Lysons and Farringham, 2006). The idea behind lean logistics is to achieve high volume with sufficient inventory, produce more with minimal defects, and deliver timely with fewer damages, while maintaining seamless flow of information. According to Galsworth (1999) lean is about getting rid of twists, skinks and leaks from the critical path.

Absence of lean material supply processes in the 90's necessitated development of tools and principles to aid supply and related processes. Starting right from inbound transportation to warehousing and transport of finished goods, lean brought about competitive advantage through providing a number of benefits that resulted to huge expansion of businesses, transcending the barriers of on time, in full and cost efficient deliveries. Lean logistics programs therefore entail activities that ensure that goods, products and materials are stored, delivered and managed through a robust communication system that ensure low cost, high quality, high efficiency and most

importantly greater customer satisfaction (Baudin, 2005). The need for lean logistics was anchored on the requirement to efficiently and sufficiently satisfy customer needs, ensure employee well-being and attain good financial returns.

Lean logistics continues to provide accurate visibility of inventory in the supply chain today, and through a reduction in inventory, costs are reduced with premium freights obtained. Rework, lead times and line stoppage also witness a significant decline. Further, there is improvement in time taken for deliveries and schedule adherence. This translates to less overtime, minimal sleep outs, minimal scraps or returns and reduced financial claims. Most importantly, it results to customer satisfaction. This would then ensure that businesses can grow easily as without satisfied customers no business can be successful (Baudin, 2005).

The ideal approach to lean logistics is to design a perfect logistics system and fit the company's operation into it. Some of the tools that help design such an environment include 5s and Kaizen. Through 5S, a visual way to identify, organize and remove wastes in a system is achieved. Kaizen on the other hand ensures that small and continuous changes that foster improvements of work practices are utilized (Erkki, 2003).

2.3 Training and adoption of lean logistics in visual workplace projects

Through training, skills, knowledge and capabilities of employees to perform their tasks effectively and efficiently are achieved. Training process transforms employee's thinking leading to harmonious coexistence, enlightenment and productiveness. Training is a continuous and never ending process, and a crucial element for development of an organisation and its success (Steve, 2009).

Training is primarily provided on four grounds. To orient new employees and give them fundamental skills necessary for their work, to familiarize with mission, vision, strategies, and regulations of the organisation. Thirdly, to train, refresh and enhance skills and knowledge of existing employees and to ensure performance for new projects through coping and managing changes brought by them. It is also provided when promotion and career growth is anticipated. Unless reduced performance is the root of lack of skillfulness or knowledge, training will not be of benefit. Generally, organizations

try to resolve the problem of reduced performance through investing more into training programs (Uma, 2013). Additionally, training opportunities that exist in organizations depend on the needs to be filled and creative ideas that are developed.

There are two broad categories of training; one is mandatory and the other is optional. For mandatory training, all employees are required to participate; they cover training of policies, organization procedures, HR, and legal requirement. Through mandatory training organizations safeguard themselves from incurring unnecessary liabilities that sometimes entail ignorance. On the other hand, optional training deals with acquisition of skills towards a specific and specialized role (Uma, 2013). According to Vivas (2014), organizations with superior performance have remained focused on training. The actual statistics show that, 57% of Project Management Officers are accountable for project management training, with majority of them focusing on training in project management fundamentals. 70% of Project Management Officers in “high performing” organisations are responsible for training on leadership, business alignment and advanced project management skills. There is a deep belief that the focus on intensive training in project management is one of the reasons these organisations have remained up in the ladder. Over the years there has been increasing number of PMOs in organisations with a greater responsibility of training on project management skills, with 73% managing project managers 82% coaching on Project Management, and 72% training and coaching on Project Management curriculum development. Additionally, the average number of days of training per year has increased to 6 days, from 5 days in 2015. Project Management Officers in organisations that perform well have high ratio of Project Management Professionals (51%), who constantly evaluate project manager competency. This gives them a head start in the wake of improving economy for new and major initiatives (Vivas, 2014).

Krishnaveni (2008) argues that evaluation of knowledge and skill levels of employees is fundamental before training commences. This portion reviews whether the employee has what it takes to perform in a given task. The performance assessment is a tool that examines the gap and determines the kind of intervention that needs to be put in place in order to improve employee’s performance. It therefore needs to be clear, informative,

concise, measurable and actionable. Once this is done, the employer will be adequately informed on whether to invest in additional training, or if it's the right time to begin a departure plan (Krishnaveni, 2008).

Considering the level of employee-customer contact in logistics, proper skills to enhance interaction is most certainly a requirement. Customer management is a phenomenon that could affect the performance of a business; poor customer service could bring an industry down to its knees. Therefore, it is not only necessary but also crucial to ensure that logistics management gives high priority to training and skill development of their human resources, which will enable smooth transition to lean. In regards to this, three dimensions pertaining to skills and training in logistics may be very essential, they include; employee training, employee sufficiency, and employee learning (Jeyaraman and Teo, 2011).

The efforts towards creating a fully functioning balance between lean and visual workplace, should therefore be directed towards training and development of visual thinkers. This is a system of thinking of employees working at the shop floor level. A visual workplace can only work if the highly visually populated environments are made up of mini-systems that are invented and created by the workforce that understands and knows how to think visually. This results to the ability to recognize wastes and eliminate them with solutions that are visual. Training on visual workplace is therefore core to ensuring adoption of lean (Galsworth, 1999).

2.4 Communication and adoption of lean logistics in visual workplace projects

Communication uses various numbers, forms and types of channels to convey information. It is a human experience, a social engagement and activity that is key to development of interpersonal and working relations (Verderber & Verderber, 2004). It is a fundamental aspect of management, which has been transformed over the years and in turn transmuted organisations tremendously. Whether communication is done informally to a colleague, or formally through addressing a meeting or writing a report, it is intended to address a specific interest in time. Wisconsin (2015) establishes that individuals recall 10% of information that is read, 20% of what is heard, 30% of what is seen and 40% of what is seen and heard.

To understand the concept of communication, it is important to define the relationship between the aspects of communication and organisation. There are two broad approaches to defining this relationship; the container approach and the social constructionist approach (Verderber and Verderber, 2004). The container approach suggests that organisations are independent and standalone structures that are likened to containers that give shape and form, influencing the behavior of communication, its content and flow. The social constructionist approach on the other hand suggests that communication gives form, shape and structure of the organization. For instance, if employees consistently channel information through one person, they develop a structure that is centrally based. This therefore results to, giving one person a high degree of power because they control the flow of information. When information is channeled to different people, they form an array of control and this creates new organizational structure, essentially a decentralized network (Axley, 1984).

The second definition of communication entails balancing creativity and constraint; it assumes that the process of communication is never entirely creative or constrained. This definition further suggest that communication is the act of constantly and consistently checking on the two elements and focus on how people use communication to resolve tension of working within fixed organizational structures and advancing innovation and creativity. For instance, one organization that is undergoing a major change project, may decide to use a container approach that is constraint by organizational structure through a formal, familiar, clear, and concise way of communication. On the other hand an organisation may utilize social constructionist approach focusing on creating forms of language independent of the organisation structure to produce desired change, for instance, a team-based language that foster teamwork. The contention of the best approach lies on emphasis to balance creativity and constraint, meaning balancing between communication that fosters transformation and being sensitive to the existing constraints of the organisation (Eisenberg and Trethewey, 2007).

In the attempt to balance creativity and constraint, communication has been cascaded down into what is seen as the most effective mode of communication – Visual communication-a crucial component of lean logistics (O'Rourke, Sedlack, Shwom, and

Keller, 2008). Kostelnick and Hassett (2003) described visual language as a continuum that ranged from a global approach to a culture based approach. The global approach assumes that images can be simplified and homogenized to transcend cultural differences (Kostelnick and Hassett, 2003). An example is the International System of Typographic Picture Education (Isotype) developed in 1930s. It was developed for global communication and in specific, translation of statistical data and analysis (Sandner, 2008). This global approach is characterized by simple, abstract, and generic forms that have no incline to race, gender or cultural biases. It was popular after the World War II and is still a backbone to the design of most visual communications. It disregards cultural differences and makes it suitable for the following practical reasons: if the visual language can be made to be neutral with regard to cultural inclinations, then it can be used interchangeable with verbal communication for the purposes of reducing the costs of translation and the size of documentation (Horton, 1993), it also facilitates intercultural communication by tightly integrating the comprehensible images with words. Translation of the visual communication is easy and less expensive, because there are less words and literature to comprehend.

However, the global approach is limited in various ways and in its applicability. First, the meaning may be lost or distorted through over-simplification or misrepresentation (Kostelnick and Hassett, 2003), so rather than serving a wide range of audience, the design may actually serve none. Second, it tends to be appropriate for communities that are discourse and have their own specialized practices and convention, those communities work as cultures within themselves, this suggests that visual communication may not be global after all but cultural, and specified.

The second extreme is the cultural perspective, which is based on the fact that visual language is a social construct, which is learnt through interdisciplinary and wide experience that tends to vary between groups, and requires application of context (Kostelnick and Hassett, 2003). In summary, the audience has expectations that are culturally derived for visual communication. The process through which meaning is constructed is not done independently and in isolation (Jaworski & Thurlow, 2010), but rather developed on cultural context. Put simply, people derive meaning and sense based

on cultural preferences, practices, attitudes, etc. (Brumberger, 2014). Moreover, how well people interpret a particular piece of visual communication depends on the task at hand, and the unique characteristics of the persons undertaking the task. The cultural approach thus insists that visual language must go together with cultural and social context, in which it is, deployed (Kostelnick and Hassett, 2003).

Visual communication is therefore an important subset or a close relative of lean. Whereas lean is concerned with reduction of time, distance, cost and improvement of quality and safety, visuals enforce adherence to related information. Anchored on visibility, lean logistics is able to bring stability to the system through clarifying transactions, surfacing relevant information that makes it work and make processes sustainable (Galsworth, 1999).

2.5 Organization culture and adoption of lean logistics in visual workplace projects

The knowledge, ideology, values, and rituals that individuals share in the organization coin their culture, as such, there is no single organizational culture within a business setup; however, unique subcultures may be experienced depending on the demographics of race, gender, sexual orientation, organizational tenure or even departmental functions. This notwithstanding, many organizational leaders are concerned with developing cultures that are overarching, cultures that emphasize ethical high performance. This is based on the understanding that ethical values ensure better and progressive organizations (Cameron and Quinn, 1999). A few important aspects of this school of thought include the idea that unethical practices frequently emerge in organizations with processes that are unmonitored, and therefore broken systems. These organisations are characterized by individuals who possess lack of accountability, responsibility and participation. Cultures that perform highly on the other hand are characterized by close working relationship, openness, and a belief in collectivism. Such culture empowers its employees to ensure productivity and fosters strong corporate values. The organizational structures are simple and are easily adopted with concurrent loose-tight qualities, that is, they are both decentralized and centralized.

To fashion a robust core identity, value and purpose, organizations engrain particular philosophies and ideologies into their employees. This indoctrination results to

employees aligning with organization requirements, and create a particular set of values that emphasize on special qualities of the organization (Christopher and Towill, 2001).

There are different types of organizational cultures, they include; Clan, adhocracy, market and hierarchy. The clan culture emphasizes on shared values and common goals. It involves an atmosphere of collectivity and mutual help and emphasis on employee involvement and empowerment. It is the kind of organizational culture that encourages the sense of “family”. Team work is emphasized and mentorship offered regularly. The focus of the organisation is to maintain loyalty, stability, participation and cohesiveness. These also form the criteria for measuring success. The adhocracy culture is a culture that is dismissed when a specific organizational task ends, and are reloaded when new tasks emerge. It gives individuals opportunities to develop in their own way, as long as they do not deviate from the organization’s goals. Individuals are characterized as entrepreneurs if they possess the ability to be innovative and find new ideas. The market culture on the other hand, is an organizational culture that focuses outside of the organisation, it deals with the relationship with people outside the confines of the organisation, this culture has a great impact on the organisation, and it dictates how employees respond towards external forces. Employees subjected to this culture are often very competitive. The hierarchy culture on the other hand is a clear organizational structure, with procedures, rules and standards, where strict control is exercised. Criterion for success is based on how far the individuals can do their tasks correctly based on the procedures and maintain the stability of the system (Cameron and Quinn, 1999).

Good organisation culture encourages members to think collectively in new and rich ways that foster coordination of activities. This is based on the idea that organisations cannot adopt to a single strategy to win in a rapidly changing business environment. As such there is need to understand, learn and internalize business fundamentals, and know what leads to its successes and failures as well as think strategically about the future (Senge, 2006). Senge argues that organisations can only develop better when they create practices that enable them to engage in systematic thinking, encourage shared vision, foster self-reflection and develop the importance of multi perspective outlook of the

organisation, ideally having a wholesome and global outlook of the organisation rather than particular tasks.

Organisation culture has a huge effect on the success of internal or external projects of an organisation. Project management proponents insist that for continuous change to be effective, the project management mindset must be embedded in organizational culture (Antony and Banuelas, 2001). A research by PMI in 2008, found that the clan (relevance placed on participation, commitment and shared values) culture that is oriented to specific values, attitude and assumptions, had the strongest relationship with effective and efficient project implementation. For an effective culture, it is imperative to first understand and internalize the elements that make and define that culture, this is important to close the gap between desired culture and the existing one. As noted in Pulse of the Profession by PMI, organizational culture sets the tone that shapes the common experiences of employees.

Achanga (2006) argue that the creation of supportive organizational culture is an essential platform for the implementation of lean management (Achanga, 2006). There is general consensus that successful implementation of lean requires adjustment of organizational culture and change of employee perception. Collaboration is necessary in order to achieve and sustain the success of lean implementation (Antony and Banuelas, 2001).

The general assumption by organisations has always been that once standards are published and presented, employees automatically follow them. Galsworth (1999) argue that when those standards are followed, it is because people decide to, but they are not powerful enough to ensure that there is change of behavior. Visual devices must therefore be developed well until the behavior change is created, if it is only partial, then it's an indication that more powerful skills are needed (Galsworth, 1999).

2.6 Leadership and adoption of lean logistics in visual workplace projects

Directing employees towards a common destination is the most important task that leaders do. It requires one to appeal to employees reasoning and thoughts. However, leadership cannot be completely be divorced from management, these two elements are complementary, and cannot exist independently in an organisation. As much as

organisations look for people who can cope with complexities, they also require people who can manage changes brought by those complexities, may it be economic, political or human complexities. According to Kotter (1990), leadership entails, developing a vision for the organisation, aligning people with that vision through effective and efficient communication and motivating them to action. In contrast, the process of management involves planning, budgeting, organizing, staffing, controlling and problem solving. Management implements the vision and direction generated by leaders; they also coordinate and staff the organisation, and handle the everyday operation of the organisation (Kotter, 1990).

Warren Bennis (1989) emphasizes that to survive in the highly dynamic and ever evolving business world, new generation of leaders are going to be needed. The distinction between a leader and a manager will be an important element (Bennis, 1989). Leaders conquer volatility, turbulence, and ambiguity that seem to conspire against organisations and may certainly affect their performance if nothing is done. Bennis (2007) summarized the issue more recently as follows “managers do things right, while leaders do the right things”

There is evidence that in the context of large organisation, the skills of individual leaders influence performance. For instance in a causal study of skills, the career progression of candidates at AT&T over a period of eight and twenty years found that among other specific traits, the cognitive, administrative and interpersonal skills of people in leadership roles, predicted career advancement through low to middle levels of management. Also in the study, a statistically significant correlation ($r=0.98$) between human capital and entrepreneurial success existed. There was even greater correlation for knowledge and skills than for education and experience. This meta-analysis research is an indication of the association between L&M skills and performance. Existing literature suggest that an expectation of positive association between L&M skills and performance is reasonable, however there have been studies that have indicated indirect association

Leader’s beliefs about the organisation are critical to undertaking risky investments. Excellent leadership is one of the most critical factors that drive the success of lean management. Top leadership set the tone and pace, but individuals at different levels of

employment have relevant roles in inspiring and motivating excellence variedly. Organisations that value commitment from top management show better performance, and believe that if support of management and leadership is weak, then initiatives are likely to crumble. Most companies implementing lean are not successful as a result of poor management support (Pande, Neuman and Cavanagh, 2000).

2.7 Theoretical Framework

This research was grounded on Womack and Jones framework on lean thinking developed in 1996. The framework is ideal because it grounds and develops the context of lean on which this study is built. Through its TPS reference, the study is able to pick fundamental elements that address both independent and dependent variables studied herein.

Lean Thinking: Banish Waste and Create Wealth in Your Corporation by P. Womack and Daniel Jones was published in 1996. It addressed evolution of Toyota Corporation and investigated the factors that set it apart in the industry. To create clarity and draw distinction, they did a comparison with American based Ford's automobile company. This was the piece of work that implicitly studied lean, and formed the basis onto which other research works on the subject built their concept.

The authors argued that a lean system of thinking assisted organisations to do activities that were critical to business success. First, it enabled specification of value with respect to what customers were willing to pay for, that is, value determined by market. Secondly, it lined up value-creating activities, putting them in clear and unambiguous sequence. Thirdly, it implemented activities and minimized interruptions and lastly, performed them more consistently and effectively. The result was the five principles of lean thinking: Value, Value Stream, Flow, Pull and Perfection.

To ensure that lean thinking work and meets its objectives, specific activities must be done critically, this require effective tools that ensure that activities are well executed and are implementable. The activities vary with organisation functions; however, the common elements highlighted above cut across industries. They include; specifying value from the perspective of the end customer. Creating a value stream which requires one to define

what happens to a product at every point in the design, production, storage, commercial, distribution and consumption. Successful organisations determine value stream through a study of all the processes required to create value, and challenge every step by applying Kaizen and asking relevant questions that evoke thought and critical reasoning. The work of Kaizen and other continuous improvement tools is to identify three category of activities; one which is value-adding and two that are non-value adding. Value-Adding are activities that unambiguously create value. None value-adding are categorized into two, the first one does not create value at all, yet it cannot be entirely avoided or eliminated. The other does not create value and can immediately be avoided, for instance, delivery of goods which have not been ordered, returns as a result of non-conformity etc. Flow concerns observing “Gemba”, it is the act of intently observing how operations work, through observing how people interact with one another, how people handle products, how information is conveyed and how transactions progress through different levels. This is relevant because real value is created at the shop floor. Flow therefore entails how people, materials and information interact to create a successful organisation. Pull focuses on service based on; the requirements of the customer, the ordering schedule of the customer and the specific details of quantities required, all this sustained by optimum inventory and minimum costs. Perfection is the last line of lean thinking that focuses on “complete elimination of waste so that all activities along a value stream create value”

Lean logistics borrows heavily from Womack and Jones framework. In lean warehousing, attempts to eliminate non-value added steps and wastes in product storage is made through reviewing the processes and activities around receipt of products in the warehouse, product rotation programs, stock reconciliation and load picking. Warehousing wastes can be seen through; defective products which create returns, excess receipt of inventories that reduce warehouse efficiency, excess motion and handling, and inefficiencies and unnecessary processing steps. Wastes in workshop consist of information communication processes, waiting parts and materials, unnecessary processing procedures, rework, and unnecessary paper trail. Lean transportation involves cross docking, inbound transportation and backhauls, transportation administrative processes and automated functions, scheduling of orders, and routing of deliveries. The

framework therefore assists to study and relate to logistics elements which include; cycle time (actual time taken to complete a cycle of transaction), lead time (the total time between processes and measuring the time taken between order placement and fulfillment) and takt time (time taken for fulfillment of customer desires outside the normal transactions)

2.8 Conceptual Framework

The interrelationships between the study variables are conceptualized in figure 1 below

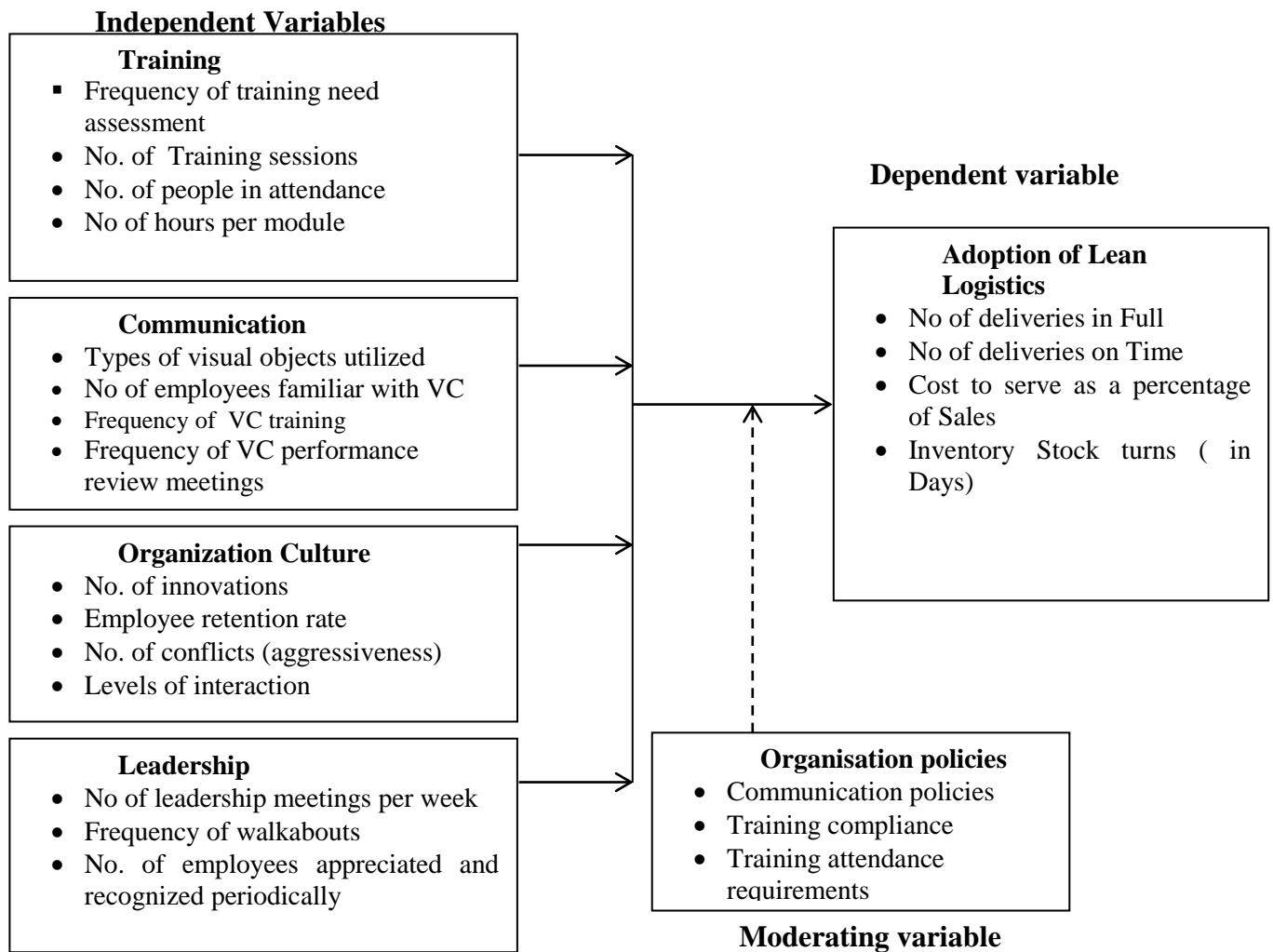


Figure 1 Conceptual Framework

Training was elaborately studied in this section; the extent of its relationship with lean logistics and how it influences its adoption was studied as depicted in the diagram. The conceptual framework also shows relationship between communication and Organization

culture and lean logistics. Lastly the contentious issue of leadership was studied in this section in relation to adoption of lean logistics shown above.

2.9 Summary and Knowledge Gap

The research observed the gaps identified in the literature review as shown in Table 2.1

Table 2.1 Knowledge Gap

Variable	Author (s) and Year	Findings	Knowledge gap
Training	Krishnaveni, 2008	Training is a never ending process, which requires evaluation of training needs prior to its implementation, not all trainings are relevant.	How to efficiently conduct training gap analysis in an agile set up like logistics
Communication	Charles Kostelnick, Michael Hassett, 2003	The global approach of visual communication assume that images can be simplified and homogenized to transcend cultural differences	How to involve stakeholders in the process of creating visuals in their cultural context
Organization Culture	Senge, 2006	Organisations can only develop better when they create practices that enable them to engage in systematic thinking, and encourage shared vision.	How to effectively identify organizational culture, and change it to fit your organisation
Leadership	Pande, P. S., Neuman, R. P. and Cavanagh, R. R, 2000	Without the continuous support and commitment from top management, the true importance of the initiative will be in vain and the efforts behind it will be weak	How to utilize “informal leadership” esp. for unskilled employees. How to identify a type of leadership for success of lean logistics
Adoption of Lean Logistics	Christopher Marc Schlick, 2013	The ideal approach to lean logistics is to design the perfect supply chain and fit the company’s operation into it. Some of the tools that help create such an environment include 5s	How to effectively identify wastes in 5S, eliminate them and track activities for sustainability in logistics

This chapter comprised of the theoretical framework, empirical review and conceptual framework. From the literature review, training was very critical to ensure that employees are kept abreast or refreshed on the new skills and knowledge set to ensure that they offered competitive performance for the organisation. Need assessment was fundamental in this process, but the literature did not demonstrate clearly whether it was a key factor considered when sourcing for the right programs or persons to ensure that training on lean logistics was fruitful.

The empirical study also focused on communication, specifically the visual communication and noted that efficient and effective VC was a fundamental requirement and lack of it was the source of confusion and customer frustration, among other costly consequences. However, despite the universal logic that pictures, images, photographs and signs transcend political, language, cultural and education barriers, it was important to note that, how well people interpreted particular pieces of visual communication depended on the task at hand, and the unique characteristics of the persons undertaking the task. There were no unique instances of redesigning visuals other than subscription from preexisting models.

The literature review also dissected organisation culture, a shared value system that characterized how people behaved, dressed, related and responded to different situations in the organisation. The literature review focused on the importance of this element as a driver of change and project performance, and stressed on the need for organisations to create environments that foster good culture.

On leadership, the literature review delved much on the difference between a leader and a manager and dispelled common notions. It stressed further on the importance of providing leadership and management that supports, gives direction, inspire as well as ensure that resources are used diligently, and that all structural elements of the organisation are well managed.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter entails how the research was conducted. It includes the research design, sampling procedure, data collection methods, validity and reliability of research instruments, methods of data analysis, operational definition of variables and ethical issues.

3.2 Research design

This study employed descriptive survey design to assist in in-depth analysis of organizational factors that influenced adoption of lean logistics. Descriptive design describes the behavior of subjects and do not look for specific relationships nor correlate two or more variables (Robson, 1993). This decision was propagated by the descriptive nature of qualitative and quantitative data collected; further the design described the interrelationships between the independent and the dependent variable. It was the easiest and most convenient due to time and cost limitations (Robson, 1993).

3.3 Target Population

The target population of the study was 220 employees in logistics competency at Nairobi Bottlers Limited; this is according to NBL's Budget Head Count for August 2016 report. This comprised of employees in Warehouse, Fleet and Distribution capabilities. The study considered permanent employees only. The specific groups that were studied were 86 drivers, 9 distribution team leaders, 5 distribution assistants , 47 forklift operators, 10 warehouse team leaders, 10 stock controllers, 10 checkers, 6 warehouse administrators, 20 load builders, 10 fleet technicians and 7 fleet team leaders. Employees in warehouse totaled to 103, distribution 100 and fleet 17.

3.4 Sampling Size & Sampling Procedure

Stratified random sampling was used in the study. The target population of 220 employees was categorized into management level, operation level, and support level. Management level consisted of team leaders in all capabilities, operation level consisted of truck drivers, fleet technicians, and forklift operators. Support level consisted of stock controllers, checkers, warehouse administrators, load builders and distribution assistants.

The sample size corresponding to a population of 220 was obtained from Krejcie and Morgan's 1970 table (McNamara, 1997) then proportions were used to calculate the sample size in each stratum. Simple random sampling was then used to obtain respondent to participate in the survey form each of the three strata.

A sample size of 136 corresponding to 220 individuals from Krejcie and Morgan (1970) table was obtained. One hundred and thirty six respondents were therefore sampled in the study. Table 3.1 shows the sampling frame

Table 3.1 Sampling Frame

Stratum	Target Population	Sample Size
Distribution Team leaders	9	6
Warehouse Team leaders	10	6
Fleet team leaders	7	5
Drivers	86	53
Forklift operators	47	29
Fleet technicians	10	6
Stock controllers	10	6
Checkers	10	6
Warehouse administrators	6	4
Load builders	20	12
Distribution assistants	5	3
Total	220	136

3.5 Methods of Data Collection

Data was collected from the selected respondents using directly distributed questionnaires by research assistants. Three research assistants each allocated one stratum were engaged. They were fluent in both English and Kiswahili to translate the questions to respondents when needed, in events where illiteracy was evident, questions were asked in the order in which they were documented in the questionnaire, exact responses were then recorded in the provided spaces. To ensure that biasness was minimized, the three assistants were inducted on the questionnaire to ensure common understanding.

The questionnaires consisted of six sections, with all six sections consisting of closed ended questions. The first section (Section A) of the questionnaire had personal information of respondents, the second (Section B), questions on training, Section C, Communication, Section D, Organization culture, section E, leadership and lastly section F on adoption of lean logistics. The questionnaire had a Likert scale rating as follows. (1) Strongly agree (2) Agree (3) Neutral (4) Disagree (5) Strongly disagree

3.6 Pilot-testing of the Research Instrument

Initial testing of the questionnaire was done with respondents from the target population to ensure that the questions were clear. Individuals used were employees in logistics department based in Nakuru depot, who had a similar project at the same time. The subjects were expected to give feedback concerning the instrument, the flow and sensitivity of information. Respondents in the pilot study did not take part in the final research. Pilot testing was done with 14 respondents which represented 10% of the sample size, 5 from each stratum, as recommended by Baker (1994). After the pilot questionnaires were returned, they were reviewed and changes made to improve comprehension, sequence, right wordings and approximate time taken to finish answering the questionnaires. The study of the completed pilot questionnaire indicated that the open ended section of the dependent variable was not clear. Five of the questionnaires were returned without responses in that section, the dependent section was therefore changed to a Likert scale ranging from 1 to 5, with 1 indicating strong agreement and 5 strong disagreements. With the changes and consistent responses received from other sections, there was a sense of reliability of the instrument.

3.6.1 Validity of the Research Instrument

Content and construct validity measures the suitability of the instrument (questionnaire) to measure what it intends to measure (Kothari, 2004). Content validity measured if questions were easily comprehensible, clear, not wordy and not too long, and when these elements were confirmed, the questionnaire passed validity test. Construct on the other hand attempted to obtain new knowledge, on the influence of the independent variables on the dependent, reviewers acknowledged the suitability of the questionnaire to provide new and relevant information. Construct and content validity were determined through a

review of the questionnaire by two colleagues who are experts and practitioners in lean logistics, and have undertaken Operational excellence projects, and reviewed similar programs. The project supervisor also guided in the same, this ensured adequate coverage of specific objectives.

3.6.2 Reliability of the Research Instrument

Reliability measures the degree to which a measurement technique can be depended upon to secure consistent results upon replication (Weiner, 2007). This research utilized split half method to ensure that the results obtained through the questionnaires were consistent. Data from the pilot test were split into odd and even questions for all the 5-likert scale questions, a correlation coefficient was then computed and adjusted using Spearman-Brown prophecy formula; $\rho = 2r/(1+r)$, with r representing coefficient of correlation between two halves, and ρ , spearman's brown reliability. A correlation of 0.829 was computed from the two halves and this was corrected using the spearman-Brown prophecy formula, $\rho = 2*0.829/ (1+0.829)$, giving 0.9065. The instrument was therefore reliable since the correlation was above 0.8 which is considered acceptable (Monette, Sullivan, and DeJong, 2005).

3.7 Data Collection Procedures

Consent to conduct research from Coca cola beverages Africa – NBL was acquired. The researchers were then trained on the data collection and general research requirements, after which they booked appointment with the leaders, who then introduced them to the rest of the subjects of study. Interviewers distributed questionnaires but also stuck around to assist those who were unable to comprehend due to inability to read or merely interpret questions. The purpose of the study was explained, and the necessary conditions for participation clearly mentioned.

3.8 Data Analysis Techniques

Data analysis refers to examination of collated data and making deductions and inferences through decoding and organization. It is disintegrated into manageable parts, to synthesize and create logical and relatable patterns (Orodho, 2002).

After the questionnaires were returned, the raw data was cleaned, edited, coded and tabulated. The quantitative data collected in the closed ended sections of the questionnaire were analysed using descriptive statistics of frequencies, percentages, and modes. Inferential statistics were also computed to determine the strength of the relationship between the dependent and independent variables.

The analysis utilized SPSS version 21 software owing to its various advantages, for instance; the capability to organize data in tabular format, saving distinct outputs and files, creating graphical displays from menus and syntaxes that make presentation easy and interesting, extensive menus with captions to direct new users, handling multiple data, and identifying errors in outputs.

3.9 Ethical Issues

Researchers obtained authorization from Nairobi Bottlers Limited to permit the study. A transmittal letter informing the respondents of the purpose of the research and assuring them of their confidentiality was also presented before data collection and no names were recorded in the questionnaires.

3.10 Operationalization of Variables

Operational definition of independent and dependent variables is show in Table 3.2 below

Table 3.2 Operationalization of Variable

Objectives	Type of Variable	Indicators	Measurement Scale	Methods of data collection	Data collection tools	Data analysis technique
To assess the extent to which training influences adoption of lean logistics in visual workplace projects	Training (independent variable)	<ul style="list-style-type: none"> ○ Frequency of job assessment ○ No. of Training sessions ○ No. of people in attendance ○ No of hours per module 	Ordinal	Administering questionnaire	Questionnaire	Descriptive statistics & Inferential statistics
To examine how communication influences adoption of lean logistics in visual workplace projects	Communication (independent variable)	<ul style="list-style-type: none"> ○ No. of visual objects utilized ○ No of employees familiar with VC ○ No. of Performance charts in use ○ No. of Meetings in a week 	Ordinal	Administering questionnaire	Questionnaire	Descriptive statistics & Inferential statistics

To investigate the extent to which organization culture influences adoption of lean logistics in visual workplace projects	Organisation culture (Independent variable)	<ul style="list-style-type: none"> ○ No. of innovative ideas ○ Employee retention rate ○ No of conflicts reported ○ Levels of interaction 	Ordinal	Administering questionnaire	Questionnaire	Descriptive statistics & Inferential statistics
To establish how leadership influences adoption of lean logistics in visual workplace projects	Leadership (Independent variable)	<ul style="list-style-type: none"> ○ No of leadership meetings per week ○ Frequency of walkabouts ○ No. of employees appreciated & recognized 	Ordinal	Administering questionnaire	Questionnaire	Descriptive statistics & Inferential statistics
	Lean logistics (dependent variable)	<ul style="list-style-type: none"> ○ No of deliveries in Full ○ No of deliveries on Time ○ No of trade returns ○ No of customer complaints 	Ordinal	Administering questionnaire	Questionnaire	Descriptive statistics & Inferential statistics

CHAPTER FOUR
DATA ANALYSIS, PRESENTATION AND INTERPRETATION

4.1 Introduction

This chapter analyses collected data, presents it in tabular form and interprets it. It further provides the major findings and results of the study as obtained from the questionnaires.

4.2 Questionnaire Response Rate

Questionnaire response rate gives the rate of questionnaires filled and returned for analysis. Table 4.1 gives the response rate from the sample size

Table 4.1 Questionnaire Response Rate

Stratum	Sample Size	Return Rate
Distribution Team leaders	6	5
Warehouse Team leaders	7	6
Fleet team leaders	4	4
Drivers	52	46
Forklift operators	28	20
Fleet technicians	6	6
Stock controllers	6	5
Checkers	6	5
Warehouse administrators	3	2
Load builders	15	8
Distribution assistants	3	2
Total	136	109

Table 4.1 shows that out of the 136 respondents targeted in the study, 109 adequately completed the questionnaires and returned them in good time for analysis. This equates to 80.15% rate of response. The score is excellent and is a representative of the target population. Mugenda and Mugenda (2003) noted that a score of 70% and above is considered excellent while a rate of 60% is good. 50% is adequate for analysis and reporting.

4.3 Personal characteristics of the respondents

As part of their personal information, the study sought to establish the background information of the respondents. The information included the designated area of work, experience in the role and the level of education attained.

4.3.1 Distribution of respondents in logistics competency

The study sought to specify the designation of respondents. This was important because the different organizational factors influenced adoption of lean logistics differently and was subject to the nature of their jobs. Rather than generalize, the study sought to identify the unique influences of the factors with regards to specific tasks. This was also necessary to ensure that the competency was well represented in the study, and was inclusive.

Table 4.2 Distribution of respondents in logistics competency

	Frequency	Percent
Distribution Driver	46	42.2
Distribution Team leader	5	4.6
Warehouse Team leader	6	5.5
Fleet Team leader	4	3.7
Forklift Operator	20	18.3
Distribution Assistant	2	1.8
Warehouse Administrator	2	1.8
Stock Controller	5	4.6
Checker	5	4.6
Fleet Technician	6	5.5
Load Builder	8	7.3
Total	109	100.0

From Table 4.2, majority of the respondents who participated in the survey were operational level of employees comprising of drivers and forklift operators at 42.2% and 18.3% respectively. The support level followed with Load builders at 7.3%, and fleet technicians trailing closely at 5.5%. Stock controllers and checkers each had a 4.6% representation, with distribution and warehouse administrators garnering 1.8% each at that level. The supervisory/management level had warehouse leadership leading with

5.5%, distribution at 4.6% and fleet at 3.7%. All the stakeholders who participated in the visual workplace projects were therefore fairly represented.

4.3.2 Distribution of respondents by experience

The study sought to establish the duration of working of the respondents in logistics. This would give an indication of whether the project was well understood or not, and would therefore remove the constraints of coverage or ignorance or both. The distribution is given in Table 4.3

Table 4.3 Distribution of respondents by experience

	Frequency	Percent
Less than 1 Year	2	1.8
Between 1 and 3 Years	28	25.7
Above 3 Years	79	72.5
Total	109	100.0

Table 4.3 indicates that majority of respondents constituting of 72.5% had experience in logistics for more than 3 years, and therefore understood the visual workplace projects that had been implemented within that period. Respondents with experience between 1 and 3 years were 25.7% and are expected to have had a good engagement with visual workplace projects within the stipulated period; they are therefore suited to confidently respond to questions regarding the project. The 1.8% of respondents with experience below 1 year may appear as outlier in the study but still represent a portion of entrants who either experience interaction with visual workplace projects or are active participants.

4.3.3 Distribution of respondents by level of education

The study sought to determine the level of skillfulness of respondents. This was necessary to determine the level of engagement in the research and how to frame questions in the questionnaire. This allowed the research to reach to all levels affected by the visual workplace projects.

Table 4.4 Distribution of respondents by level of education

	Frequency	Percent
Primary	1	.9
Secondary	45	41.3
Tertiary	43	39.4
University	20	18.3
Total	109	100.0

From Table 4.4, 41.3% were high school graduates, 39.4% had post-secondary education and had acquired certificates and diplomas. Lastly 18.3% were university graduates. Practically all respondents in the survey had elementary education and this reduced the need to interpret all questions, and use more resources to reach respondents for one on one sessions. Further the information gave a preview of the aspect of skill level in visual workplace projects, given the range of education level, it was expected that the level of skills would be varied and therefore adoption of projects. This was an important element in the study.

4.4 Descriptive statistics on Training

In an effort to determine the organizational factors influencing the adoption of lean logistics in a case of visual workplace projects in NBL, respondents in the study were asked to indicate their level of agreement with specific statements in the questionnaire that related to training and its influence in adoption of lean logistics. The Likert scale used in the analysis ranged from 1 to 5 with 1 indicating strong agreement and 5 strong disagreements with the statement.

Table 4.5 shows the statistics on some of the findings from questions in the survey related to training and how respondents were in agreement or disagreement with the statements.

Table 4.5 Descriptive Statistics on Training

	Need assessment on training of 5S and Kaizen	Number of trainings offered on 5S and Kaizen	Employee consultation on 5S and Kaizen training programs	Consistent performance review of projects after training	Visual training contribution to efficient operations
N Valid	109	109	109	109	109
Mean	3.57	2.53	3.76	3.66	3.30
Mode	5	2	4	4	3

Table 4.5 shows a mode of 5 for the questionnaire item “Need assessment is usually done before training on 5S and Kaizen” indicating that most respondent strongly disagree with the statement. A mode of 4 on “There is elaborate consultation on the method of training that is applicable for 5S to work” and “There are consistent performances reviews after training of 5S and Kaizen” also shows disagreement with the two statements. Most of the respondents agreed with the statement that “there are many training programs offered to understand 5S and Kaizen” but majority are neutral as to whether “training on 5S and Kaizen is a major contributor to lean and efficient operations”. It can therefore be concluded that employees lack training need assessment, consultation with stakeholders and constant review of the progress of projects.

4.4.1 Training need assessment of 5S and Kaizen

The respondents were asked whether need assessment was usually done before training on 5S and Kaizen projects. The findings are shown in Table 4.6

Table 4.6 Training need assessment of 5S and Kaizen

	Frequency	Percent
Strongly Agree	9	8.3
Agree	14	12.8
Neutral	24	22.0
Disagree	30	27.5
Strongly disagree	32	29.4
Total	109	100.0

From Table 4.6, 56.9% of the respondents were in agreement that need assessment was not done before training to develop good training programs, only 21.1% agreed and 22% were neutral. This was an indicator that NBL and the logistics competency were not involved in any form of training need assessment.

4.4.2 Frequency of 5S and Kaizen Trainings

This question sought to determine if the respondents felt that frequency of training had a potential influence to the level of understanding of 5S and Kaizen. The findings are shown in Table 4.7

Table 4.7 Frequency of 5S and Kaizen Trainings

	Frequency	Percent
Strongly Agree	24	22.0
Agree	43	39.4
Neutral	10	9.2
Disagree	24	22.0
Strongly Disagree	8	7.3
Total	109	100.0

Table 4.7 shows that 61.5% of the respondents were in agreement with the fact that the frequency of training influenced the general understanding of 5S and Kaizen, 9.2% were neutral with 22.0 disagreeing with the statement. Only 7.3% strongly disagree. This therefore implies that the organisation offered frequent training programs on 5S and Kaizen.

4.4.3 Employees/stakeholder consultation on 5S and Kaizen training programs

This question sought to determine if there was elaborate stakeholder consultation on development of training programs for 5S and Kaizen that were applicable in their area of work. The findings are presented in Table 4.8

Table 4.8 Employee consultation on 5S and Kaizen training programs

	Frequency	Percent
Strongly Agree	4	3.7
Agree	8	7.3
Neutral	24	22.0
Disagree	47	43.1
Strongly Disagree	26	23.9
Total	109	100.0

Table 4.8 shows that on the issue of stakeholder consultation when preparing for visual workplace training, only 3.7% of the respondents strongly agreed that it happened. 7.3% only agreed and 22% were unsure of the statement. On the flip side, 43.1 disagreed and 23.9% strongly disagreed with the statement. At 67% disagreement with the statement, it indicated that employee consultation on training methodology, on what worked and what didn't, was not happening.

4.4.4 Consistent performance review of projects after training

This question sought to determine if there were constant follow up on the progress of visual work place projects after training in NBL. The findings are summarized in Table 4.9

Table 4.9 Consistent performance review of projects after training

	Frequency	Percent
Strongly Agree	3	2.8
Agree	14	12.8
Neutral	25	22.9
Disagree	42	38.5
Strongly Disagree	25	22.9
Total	109	100.0

From Table 4.9, 2.8% respondents strongly agreed that consistent performance reviews of the visual workplace projects after training were done. 12.8% agreed and 22.9% were unsure. On the other hand 38.5% of respondents disagreed that consistent performance review were done with another 22.9% strongly disagreeing with the statement. This makes up 61.4% of respondents who utterly disagreed with the assertion. This is an

indicator of the absence of follow up and consistent reviews of performance of projects after any training on 5S and Kaizen.

4.4.5 Visual training contribution to efficient operations

This question sought to determine if the respondents attributed visual work place training as relevant and a major contributor to efficient operations. The findings are shown in Table 4.10

Table 4.10 Visual Training contribution to efficient operations

	Frequency	Percent
Strongly Agree	17	15.6
Agree	12	11.0
Neutral	27	24.8
Disagree	27	24.8
Strongly Disagree	26	23.9
Total	109	100.0

From Table 4.10, 15.6% of respondents strongly agreed that training on 5S and Kaizen were major contributors to efficient operations, 11% agreed and 24.8% either disagreed or were unsure. Another set of respondents at 23.9% strongly disagreed, and thought that the training programs were not worth the investments. This indicates that use of visuals cannot completely account for any good performance recorded in operations and that there are other contributors not studied herein.

Spearman correlation analysis was conducted at 95% confidence interval and 5% significance level and was a 2-tailed test. There was a very weak positive correlation between training and adoption of lean logistics in visual workplace projects in Nairobi Bottlers Limited with spearman's rho of 0.015. The value of 0.015, for a sample size of 109 at significance level of 0.05 was not statistically significant. This implies that the positive relationship between training and adoption of lean logistics was likely attributed to random chance.

4.5 Descriptive Statistics on Communication

In an effort to determine the influence of communication on adoption of lean logistics in visual workplace projects in Nairobi Bottlers Limited, respondents in this study were asked to indicate their level of agreement with specific statements in the questionnaire that related to visibility of visual boards, applicability of the visuals, compliance, and replacement of obsolete visuals. The coding used the Likert scale in the analysis in the range of 1 to 5, with 1 representing strong agreement and 5 representing strong disagreement.

Table 4.11 shows the statistics on some of the findings from questions in the survey related to communication and adoption of lean logistics.

Table 4.11 Descriptive Statistics on Communication

		Easy interpretation of visual communication	Participatory contribution of development of visuals	Constant replacement of visuals	Recommended mechanism for communication
N	Valid	109	108	109	108
	Missing	0	1	0	1
Mean		2.54	3.56	3.25	2.43
Mode		2	4	4	1

Table 4.11 indicates that for the items on communication and adoption of lean logistics, a mode of 2 indicated that most respondents agreed that bar graphs, charts, picture and drawings were easily comprehensible and easy to interpret. A mode of 1 indicated that most respondents recommended visuals as the most appropriate and effective way of communicating in the workplace. Most respondents however differed and disagreed with the proposition that employees participated and contributed towards development of visuals, they also disagreed that there were constant replacement of visuals when they got defaced, and obsolete.

4.5.1 Interpretation of visual communication

This question sought to determine if visual communication were easy to interpret and if they suited to exchange information towards visual workplace projects in NBL. The findings are shown in Table 4.12

Table 4.12 Interpretation of visual communication

	Frequency	Percent
Strongly Agree	26	23.9
Agree	34	31.2
Neutral	24	22.0
Disagree	14	12.8
Strongly Disagree	11	10.1
Total	109	100.0

From Table 4.12 it is evident that majority of respondents at 31.2% agreed that visual communication was easy to interpret and was ideal for communication in visual workplace projects. This is concurrence with the mode of 1 under Table 4.12. 22% of the respondents were neutral, with 12.8% disagreeing and another 10.1% strongly disagreeing. With 55.1% agreeing with the statement, then it implies that stakeholders are able to interpret visuals well in implementation of visual workplace projects.

4.5.2 Participatory contribution on development of visuals

This question sought to determine whether stakeholders participated in development of visuals in form of opinions or otherwise in visual workplace projects in Nairobi Bottlers Limited. The findings are summarized in Table 4.13

Table 4.13 Participatory contribution on development of visuals

	Frequency	Percent
Strongly Agree	4	3.7
Agree	17	15.6
Neutral	24	22.0
Disagree	41	37.6
Strongly Disagree	22	20.2
Total	108	99.1
Missing System	1	.9
Total	109	100.0

Table 4.13 shows that majority of respondents, at 41% disagreed that they contributed and participated in development of visuals. They denied giving opinions on issues visual communication in the visual workplace projects. 22% were unsure, with 20.2% strongly

disagreeing with the statement. 19.3% of the respondents were in agreement on participation in such processes. This then implies that employees in logistics competency do not participate in development of visual aids in terms of offering opinion or views in visual workplace projects

4.5.3 Constant replacement of visuals

This question sought to determine if there was constant replacement of visuals when they got old, defaced or obsolete during the implementation of visual workplace projects in NBL. Table 4.14 summaries the results of the survey

Table 4.14 Constant replacement of visuals

	Frequency	Percent
Strongly Agree	11	10.1
Agree	25	22.9
Neutral	19	17.4
Disagree	34	31.2
strongly Disagree	20	18.3
Total	109	100.0

From Table 4.14, 31.2% disagree with the statement that constant replacement of visuals used in visual workplace projects in NBL was actual. A further 18.3% strongly disagreed with the statement. Accumulated 33% of the respondents agreed that indeed there were frequent replacements of visuals towards the success of the visual work place projects. Only 17.4% were neutral and unsure about the statement. This therefore implies that visual aids used towards visual workplace projects in NBL are not constantly and frequently replaced when they become defaced, old or obsolete.

4.5.4 Visuals as recommended mechanism for communication

The question sought to find out if the use of visuals was an effective way to communicate in visual workplace projects as compared to other forms of communication in NBL. It set out to determine the feelings that stakeholders had concerning the visuals in a workplace. The results of the survey are presented in Table 4.15

Table 4.15 Visuals as recommended mechanism for communication

	Frequency	Percent
Strongly Agree	36	33.0
Agree	26	23.9
Neutral	20	18.3
Disagree	16	14.7
Strongly Disagree	10	9.2
Total	108	99.1
Missing System	1	.9
Total	109	100.0

From Table 4.15, 33% of the respondents strongly agreed that visuals were a great mechanism for communication and would recommend it to be utilized in visual workplace projects. 23.9% also agreed with the statement. 18.3% and 14.7% were neutral and disagreed respectively, with 9.2% strongly disagreeing that visuals were the best methods of communicating in visual workplace projects in NBL. This implies that employees in logistics competency in NBL prefer visuals as a means of communication in visual workplace projects.

Spearman correlation analysis was conducted at 95% confidence interval and 5% significance level and was a 2-tailed test. There was a positive correlation between communication and adoption of lean logistics, indicated by spearman's rho value of 0.455. Additionally, the value of 0.455 for a sample size of 109 at a significance level of 0.005 is statistically significant. We can therefore conclude that there is statistically significant relationship between communication and adoption of lean logistics.

4.6 Descriptive Statistics on Organisation Culture

In an effort to determine the influence of organisation culture on adoption of lean logistics in visual work place projects in NBL, respondents in the study were asked to indicate their level of agreement with specific statements in the questionnaire that related to organisation culture and its influence on adoption of lean logistics. The coding employed was a Likert scale ranging between 1 and 5 with 1 representing strong agreement and 5 strong disagreements with the statements. Table 4.16 shows statistics on some of the findings from questions in the survey related to organisation culture.

Table 4.16: Descriptive Statistics on Organisation Culture

		Employees are interested in understanding 5S and Kaizen	Employees share their views on 5S and Kaizen	Employees are committed on 5S and Kaizen	Suggestions boxes encourage feedback on 5S and Kaizen workings
N	Valid	109	109	108	109
	Missing	0	0	1	0
Mean		2.94	3.08	2.57	3.24
Mode		4	3 ^a	2	4

a. Multiple modes exist. The smallest value is shown

As shown in Table 4.16, a mode of 4 indicates that most respondents disagreed with the statement that “Employees show interest in understanding 5S and Kaizen challenges in different areas of work”. A mode of 3 indicated respondents who were unsure if employees shared their views without fear or intimidation on the workings of 5S and Kaizen. Further disagreement on whether there were suggestion boxes to create anonymity and encourage feedback on 5S and Kaizen workings were indicated by a mode of 4. On the flip side though, most employees indicated that they were open and honest about the workings of 5S and Kaizen whenever they had the opportunity to air their views.

4.6.1 Employees’ interest in 5S and Kaizen

This question sought to determine if employees were part of the problem hindering adoption of visual work place projects. It was determined through investigation of employee interest in the projects. The findings are summarized in Table 4.17

Table 4.17 Employees are interested in understanding 5S and Kaizen

	Frequency	Percent
Strongly Agree	22	20.2
Agree	22	20.2
Neutral	20	18.3
Disagree	31	28.4
Strongly Disagree	14	12.8
Total	109	100.0

Table 4.17 indicates that 28.4 of respondents disagreed that employees were interested in understanding 5S and Kaizen. Another 12.8% strongly disagreed with the statement. 20.2% of each of the respondents agreed and strongly agreed about some degree of interest shown in understanding 5S and Kaizen. 18.3% of the respondents were neutral. This implies that employees in logistics competency generally are not interested with visual workplace projects or their implementation.

4.6.2 Employees share their views on 5S and Kaizen

This question sought to find out if employees shared their attitude, feelings and views towards visual work place projects particularly 5S and Kaizen. It sought to determine the level of openness, collaboration and teamwork presumed by employees. This would therefore be a pointer to the shared values, practice and culture of employees in logistics. Table 4.18 summarizes the findings

Table 4.18 Employees share their views on 5S and Kaizen

	Frequency	Percent
Strongly Agree	17	15.6
Agree	21	19.3
Neutral	26	23.9
Disagree	26	23.9
Strongly Disagree	19	17.4
Total	109	100.0

Table 4.18 shows that 23.9% of respondents disagreed that they shared their views about the workings of 5S and Kaizen, another set with similar rate were unsure of the statement. 19.3% of the respondents agreed that they indeed shared issues around 5S and

Kaizen. 17.4% strongly disagreed, and 15.6% agreed to the statement. This implies that employees in logistics do not share between themselves on the workings, problems or issues around visual work place projects, and simply put would mean that they do not care about the projects.

4.6.3 Employees are committed towards 5S and Kaizen

This question sought to investigate integrity in logistics with regards to visual workplace projects. It sought to determine if respondents were open and honest about the workings of 5S and Kaizen, as such was an indicator to the level of commitment of respondents towards visual tools in NBL. Results for the survey are presented in Table 4.19

Table 4.19 Employees are committed towards 5S and Kaizen

	Frequency	Percent
Strongly Agree	23	21.1
Agree	33	30.3
Neutral	26	23.9
Disagree	19	17.4
Strongly Disagree	7	6.4
Total	108	99.1
Missing System	1	.9
Total	109	100.0

From Table 4.19, 30.3% of respondents agreed that they were committed to 5S and Kaizen, 21.1% strongly agreed, and 23.9% were neutral about the statement. 17.4% disagreed with the statement and 6.4% strongly denied commitment of employees in logistics towards 5S and Kaizen. 51.4% cumulative agreement indicates that employees in logistics are generally committed towards 5S and Kaizen.

4.6.4 Suggestions boxes encourage feedback on 5S and Kaizen workings

This question sought to find out the culture of the organisation to encourage feedback, and facilitate the process of acquiring responses on the workings of visual workplace process. The summary of findings is presented in Table 4.20

Table 4.20 Suggestions boxes encourage feedback on 5S and Kaizen workings

	Frequency	Percent
Strongly Agree	15	13.8
Agree	18	16.5
Neutral	23	21.1
Disagree	32	29.4
Strongly Disagree	21	19.3
Total	109	100.0

According to Table 4.20, 29.4% disagreed that attempts to provide feedback about the workings of the visual aids were made. This is because there were no suggestion boxes supplied for the purpose. Further 19.3% of respondents strongly disagree with that statement. 21.1% of respondents were neutral, and a cumulative 30.3% of respondents were in agreement that the organisation encouraged feedback in implementation of visual workplace projects. The statistics generally suggests that employees in logistics do not provide feedback on the workings, problems or issues involving 5S and Kaizen.

Spearman correlation analysis was conducted at 95% confidence interval and 5% significance level and was a 2-tailed test. The Spearman's rho value of 0.208 indicated a weak positive relationship between organisation culture and adoption of lean logistics. The value of 0.208 for a sample size of 109 at significance level of 0.05 was statistically significant. There was therefore statistically significant relationship between organisation culture and adoption of lean logistics

4.7 Descriptive statistics on leadership

In an effort to determine leadership influence on adoption of lean logistics in visual work place projects in Nairobi bottlers limited, respondents in this study were asked to indicate their level of agreement with specific statements in the questionnaire that related to the visual workplace projects and the role of leadership on its adoption. The coding utilized the Likert scale that ranged between 1 and 5, with 1 representing strong agreement and 5 representing strong disagreement with the statements. Table 4.21 gives descriptive statistics on some of the findings from the questions in the survey related to influence of leadership on adoption of visual workplace projects in NBL

Table 4.21 Descriptive statistics on leadership

		Periodic assessment on 5S and Kaizen by managers	Managers are easily accessible and approachable	Constant appreciation on performance of 5S and Kaizen	Leadership commitment towards visual use
N	Valid	108	108	108	108
	Missing	1	1	1	1
Mean		3.68	1.90	2.37	4.00
Mode		4	2	2	4

From Table 4.21 a mode of 4 indicates that respondents strongly agreed that managers were keen on 5S and Kaizen and periodically assessed their performance, and that leadership was committed towards visual use at the workplace. They also agreed that managers were easily approachable to address issues emanating from 5S and Kaizen and that there were constant appreciations by leadership on performance based on visuals use in different areas within logistics.

4.7.1 Periodic assessment on 5S and Kaizen by managers

The statement sought to find out if managers were involved in periodic reviews and assessment of performance of 5S and Kaizen. The findings are summarized in Table 4.22

Table 4.22 Periodic assessment on 5S and Kaizen by managers

		Frequency	Percent
	Strongly Agree	5	4.6
	Agree	12	11.0
	Neutral	24	22.0
	Disagree	39	35.8
	Strongly Disagree	28	25.7
	Total	108	99.1
Missing	System	1	.9
Total		109	100.0

From Table 4.22, 35.8% of respondents disagreed that managers were involved in periodic assessment of the workings of 5S and Kaizen; a further 25.7% strongly disagreed with the statement. 22% of the respondents were neutral while 11% agreed that assessments were done on a periodic basis. A mere 4.6% strongly agreed with the

statement. Accumulated 61.5% of respondents disagreed that reviews and assessments were done periodically with the leadership of management. It is therefore imperative to conclude that assessment of visual workplace projects in logistics competency is not done periodically.

4.7.2 Managers are easily accessible and approachable

The statement sought to find out if managers were easily approachable to sought issues emanating from visual use or related to the workings. It sought to answer questions of availability of leadership and their influence on visual workplace projects in NBL. Table 4.23 summarizes the findings

Table 4.23 Managers are easily accessible and approachable

	Frequency	Percent
Strongly Agree	37	33.9
Agree	51	46.8
Neutral	15	13.8
Disagree	4	3.7
Strongly Disagree	1	.9
Total	108	99.1
Missing System	1	.9
Total	109	100.0

From Table 4.23, 46.8% of respondents agreed that managers were easily accessible and approachable; another 33.9% strongly agreed that they were quite approachable. 3.7% disagreed with the statement while 0.9% strongly disagreed. 13.8% of the respondents were unsure about the statement. 80.7% rate of agreement is an indication that managers in logistics competency are constantly available and they are easily accessible and approachable to lead on visual workplace projects in NBL

4.7.3 Constant appreciation on performance of 5S and Kaizen

The statement sought to find out if employees were being appreciated for engaging in 5S and Kaizen projects. It sought to investigate the leadership role in ensuring that the visual workplace projects worked through motivating employees to get involved in the projects. Table 4.24 summarizes the findings

Table 4.24 Constant appreciation on performance of 5S and Kaizen

	Frequency	Percent
Strongly Agree	31	28.4
Agree	38	34.9
Neutral	14	12.8
Disagree	18	16.5
Strongly Disagree	7	6.4
Total	108	99.1
Missing System	1	.9
Total	109	100.0

From Table 4.24, 34.9% of respondents agreed that they were constantly appreciated for taking part in 5S and Kaizen and this motivated them to further engage in visual workplace projects; another 28.4% strongly agreed with the statement. 16.5% and 6.4% of respondents however disagreed and strongly disagreed respectively. They insisted that there were no forms of appreciation when involved in visual workplace projects. 12.8% of the respondents were neutral. It can therefore be concluded that since majority of the respondents are in agreement about appreciation and recognition, then it is imperative that leadership is involved in initiatives to make the visual workplace projects work in logistics.

4.7.4 Leadership commitment towards visual use

This question sought to investigate the level of engagement and focus of managers towards visual workplace projects. It sought to demystify involvement of these leaders as just a mere act of formality or compliance. Table 4.25 summarizes the findings

Table 4.25 Leadership commitment towards visual use

	Frequency	Percent
Strongly Agree	7	6.4
Agree	9	8.3
Neutral	19	17.4
Disagree	43	39.4
Strongly Disagree	29	26.6
33	1	.9
Total	108	99.1
Missing System	1	.9
Total	109	100.0

From Table 4.25, 39.4% of respondents disagreed with the statement that leaders showed commitment towards visual use, 26.6% strongly disagreed with the statement and 17.4% were unsure. On the other hand, 6.4% strongly agreed that leaders were committed and focused on 5S and Kaizen, with another 8.3% agreeing to the statement. Cumulatively 56% disagreed with the statement, it is therefore implied that leadership in logistics are not committed or focused on visual workplace projects

Spearman correlation analysis was conducted at 95% confidence interval and 5% significance level and was a 2-tailed test. It showed spearman's rho value of 0.203, indicating a very weak positive correlation between leadership and adoption of lean logistics. In addition, the value of 0.203, for a sample size of 109 at significance level of 0.05 is statistically significant. Hence it could be concluded that there is a somewhat significant relationship between leadership and adoption of lean logistics

4.8 Descriptive Statistics on Adoption of Lean Logistics

Table 4.26 shows the statistics on some of the findings from questions in the survey related to lean logistics in visual workplace projects in NBL and how respondents were in agreement or disagreement. The Likert scale that was used ranged between 1 and 5, with 1 indicating strong agreement and 5 strong disagreements.

Table 4.26 Descriptive Statistics on Adoption of Lean Logistics

		Orders delivered in full have improved	Orders delivered on time have improved	Fuel Ratio has improved with time	Customer Complaints have really reduced	Product returns have reduced	The cost of Repair and Maintenance has reduced
N	Valid	109	109	109	109	109	109
	Missing	1	1	1	1	1	1
Mean		3.84	3.21	2.40	4.13	3.41	3.55
Mode		4	4	2	4	4	4

From Table 4.26, it is evident that for the six indicators of the dependent variable (adoption of lean logistics in visual workplace projects in NBL) most respondents disagreed that orders delivered in full had improved. They also disagreed on the statements that; orders were being delivered on time, customer complaints had reduced, Product returns had minimized and Repair and Maintenance costs had improved. Majority of the respondents however agreed that the ratio of fuel to distance travelled had improved tremendously.

CHAPTER FIVE

SUMMARY OF FINDINGS, DISCUSSIONS, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter presents a summary of the study findings, discussions, conclusions and recommendations. The findings are summarized in line with the objectives of the study which include training, communication, organisation culture and leadership. These independent variables were studied against the dependent variable which is adoption of lean logistics

5.2 Summary of Findings

This section presents the findings from the study on the organisational factors influencing adoption of lean logistics in visual workplace projects in Nairobi Bottlers Limited. It was established that all the organisational factors positively influenced the adoption of lean logistics, however, the correlation between training and adoption of lean logistics was not statistically significant, and could have been due to random chance. The rest of the organisational factors had statistically significant correlations.

5.2.1 Findings on Training and Adoption of Lean Logistics

After initiation of visual workplace projects in logistics in the first quarter of financial year 2014, training sessions picked up immediately. The responses from the subjects of the study reported 56.9% absence of training need assessment before training exercises commenced, regardless of this, 61.5% of the respondents agreed that there were many training sessions offered to understand visuals. 67% of the respondents agreed that there were no employee/stakeholder consultation on the method of training and a further 61.4% confirmed that no follow-up on the success of training was done. Additionally, the study established that there existed a weak correlation between training and adoption of lean logistics that was not statistically significant, given by a p value of $0.538 > 0.05$ and Spearman's rank correlation coefficient of 0.015

5.2.2 Findings on Communication and Adoption of Lean Logistics

The study established that majority of respondents, at 55.1% were in agreement with the fact that visuals were easy to interpret and that they played a key role in their areas of work. Majority of respondents at 57.8% disagreed that there was participatory contribution towards appropriate development of visuals, while 49.5% noted that when the visuals got defaced, old or obsolete there was no urgency to replace them. Further 56.9% believed that visuals were a recommendable communication mechanism. The results produced a statistically significant positive relationship between communication and adoption of lean logistics in NBL with p value of $0.000 < 0.05$ and Spearman's rank correlation coefficient of 0.455

5.2.3 Findings on Organisation Culture and Adoption of Lean Logistics

Majority of the respondents in the study at 41.2% indicated that employees did not show interest to understand the workings of visual tools or their interpretation. 41.3% of the respondents found it absurd to talk about visuals, share views about their workings, and challenges. 51.4% of the respondents reported that there was no any form of commitment towards the use of visuals. 48.7% noted that there was no attempt to give feedback to stakeholders on the workings of visuals. There were no suggestion boxes fixed for such responses to encourage anonymous feedback. The study established that there was a statistically significant weak and positive relationship between organisation culture and adoption of lean logistics in NBL with a p value of $0.030 < 0.05$ and spearman's rank correlation coefficient of 0.208

5.2.4 Findings on Leadership and Adoption of Lean Logistics

61.5% of the respondents in the study were of the opinion that periodic assessment and reviews by managers were not happening. 80.7% agreed that managers were easily accessible and approachable to discuss matters emanating from visual workplace projects. Further, 63.3% of respondents noted that leaders regularly appreciated and recognised employees who diligently participated in those projects; however, 66% of respondents reported that the leadership did not have commitment towards visual workplace projects. The study established that there was a statistically significant positive

correlation between Leadership and Adoption of Lean Logistics in NBL with p value of $0.035 < 0.05$ and spearman's rank correlation coefficient of 0.203

5.3 Discussion of Findings

The findings showed positive significant correlation between all the four factors with an exception of training in visual workplace projects. The findings however, did not explain why there were weak correlations and why training was statistical insignificant. The discussion of findings from this study is presented as follows;

5.3.1 Training and Adoption of Lean Logistics

Krishnaveni (2008), argues that for any training to achieve its objectives, it must be preceded with sufficient training needs assessment. This tool evaluates the level of knowledge and skills of employee, and therefore the gaps to close. It forms the basis of training program, development of training curriculum and other interventions that fit the case. This portion therefore reviews whether the employee has what it takes to perform in a given task. Training needs assessment determines the exact challenges that could result to failure of a project and puts cautionary measures in terms of suitability and appropriateness of training programs. The importance of this tool cannot be underestimated; it therefore needs to be clear, informative, concise, precise and actionable. Once this is done, the employer will be adequately informed on whether to put resources on the training activities, or if it's the right time to trash the process and pursue better alternatives (Krishnaveni, 2008).

The study established that training influenced adoption of lean logistics in NBL. The study also established that the lack of training need assessment before training programs were offered resulted to ineffective training sessions. Ineffective trainings resulted to dismal logistics performance. Increased number of training programs to familiarise employees with the visual workplace, were countered by ineffectiveness of the methods of training. Additionally, there were no stakeholder consultations when developing methods, modules or requirements for training and wrong training objectives likely developed from the start, absence of follow up further hindered identification of training gaps, and remedial actions.

5.3.2 Communication and Adoption of Lean Logistics

Kostelnick and Hassett (2003), state that cultural perspective of communication is based on the fact that visual language is a social construct, which is learnt through interdisciplinary and wide experience that tends to vary between groups, and requires application of context. The process through which meaning is constructed is not done independently and in isolation (Jaworski and Thurlow, 2010), but rather developed on cultural context. Put simply, people derive meaning and sense based on cultural preferences, practices, attitudes, etc. (Brumberger, 2014). Moreover, how well people interpret a particular piece of visual communication depends on the task at hand, and the unique characteristics of the persons undertaking the task.

The study established that the ability to interpret visuals, participate towards their development and frequently replace substandard ones directly influenced adoption of lean logistics in NBL. Visual aid are meant to cut down on communication time and process, this is depicted in the study with the ease of interpretation depicted quite well, however the inability to involve stakeholders in their development results to lack of ownership and right application, further, use of obsolete or unclear visuals obscure communication.

5.3.3 Organisation Culture and Adoption of Lean Logistics

Achanga (2006) discusses the elements that build lean culture. He argues that lean culture gives direction to the way people think and act, and therefore changes the general view that people hold concerning a subject matter. Lean culture involves transformation of people's behavior, their emotional processes and political dynamics. Successful organizations therefore put more focus to examining their organisation cultures and shifting the status quo to the desired position. He further argues that the essential activity is to create an organizational culture that is supportive towards implementation of lean and related projects. There is general consensus that successful implementation of lean requires adjustment of organizational culture and change of employee perception. To sustain the culture of lean, collaboration, openness, sharing and consultation are basic necessities.

The study has established that organisation culture influences adoption of lean logistics in visual workplace projects in NBL. It has shown that employee interest in understanding

visuals, collaboration and sharing in matters visuals, commitment towards working with visuals in a workplace and constantly providing feedback on issues emanating from the visual workplace have an effect on changing the attitude of employees and creating a system of shared values that facilitate visual use. Employees can own up the projects and make them work even better. The absence of the above indicators means poor customer service, poor on time and in full performances, increased complaints and stupendous returns.

5.3.4 Leadership and Adoption of Lean Logistics

Zaleznik (1997), describes Leadership as a process that involves understanding people's beliefs, appealing to their needs and gaining trust and commitment. He argues that leadership involves setting a sense of direction to employees and is not subject to rank of employment (Zaleznik, 1997). According to Kotter (1990), leaders are involved in developing and driving the vision of the organisation, it entails aligning with employees on what is expected of them as contained in the vision, philosophy, values and requirements of the organisation. They motivate through empowerment, appreciation and recognition. However, leadership cannot exist in solitude; it has to be complemented with effective and efficient management roles. Management implements the vision and direction generated by leaders; they facilitate the organisation functions that give platform for leaders to exercise their roles. They coordinate and organize staff, and handle the everyday operation of the organisation (Kotter, 1990).

The study has established that leadership influences adoption of lean logistics in visual workplace projects in NBL. The research further has shown that periodic assessment and reviews of progress of visual workplace projects, accessibility and approachability of managers, constant and regular appreciation and recognition of employees' performance, and individual leadership commitment highly influences adoption of lean logistics. Leadership cannot exist in a vacuum; it has to be complemented with strong management roles.

5.4 Conclusion

Based on the findings of the study, the following conclusions are made on the organizational factors influencing adoption of lean logistics. All the four organizational

factors influenced the adoption of lean logistics in NBL to almost similar extents as demonstrated by the correlation coefficients that were moderate for communication and weak for training, organisation culture and leadership. Training need assessment was found to be the most important element to consider before any training commences. This develops training gaps, and therefore training structures that are consultative and all inclusive. Good training needs assessment results to good training programs. Development of those programs requires collaboration and consultation of stakeholders to foster commitment and ownership. Successful training programs are then superseded by adequate follow-up to gauge the level of success, and thence formulate better practices. Visual communication was demonstrated as an effective instrument for engaging employees in a visual workplace, they transcend cultural barriers, skill level or ranks and are easy to interpret, as such they foster speed, clarity and order in the workplace. However, it is prudent to ensure that stakeholders are regularly consulted when developing them to get their input on what works and what doesn't. Attitude, preferences, politics and grapevine are potential fuels for success or failure of visual workplace projects and therefore lean. Organisations must therefore be prepared to develop employees' cultures in order to succeed in any change management. The study demonstrated that employees' perception towards visual workplace influenced adoption of lean. If workers are not willing to recognize or appreciate interventions in their places of work, then it's upon the leadership and management to sensitize, create awareness and demystify notions hampering implementation. Leadership commitment towards visual workplace projects sets pace for everything else. Absolute commitment entails being accessible and approachable at all time to handle issues emanating from projects and oversee successful implementation. Good leadership will inspire the shop floor workers to gain commitment, create a positive attitude and make visuals work.

5.5 Recommendations

On the basis of the findings from the study, it is recommended that:

1. Training programs include a robust training need assessment to identify skills and training gaps, then develop programs that are consultative, all inclusive and fit for the case. It should be done to empower employees to develop their own visuals and implement them regularly as the need arises rather than outsource standardized

- visuals that are expensive and rigid in their application. Finally a follow-up to investigate the progress of the training and make the necessary adjustments where necessary
2. Real time feedback and communication can be enforced through use of communication centers across all levels. This is where all success stories, performance tracking and lessons learnt are shared. However, this can only be done after a thorough training process, involving stakeholder participation. Visual needs must also be identified in specific workplaces to foster strategic placement of visuals. Constant monitoring and replacement mechanisms are other interventions to ensure continuity and adherence to best practices in lean logistics
 3. Support from the top management and buy in from shop floor is the only secret to sustained lean logistics. Shop floor will support if they know it will benefit them and management wants something that can drive strategy. Leadership should therefore develop relationship with shop floor, empower them through relevant and effective training, and delegate roles to create accountability, ownership and commitment
 4. A visual device should be designed to influence, direct or limit the behavior by making vital information available and close to users. Additionally, they must be unequivocal and translatable. Visual workplaces must be pursued as equal partner to lean and devices must be developed a part of the lean journey so that there is feasibility of what is normal and abnormal

5.6 Suggestions for Further Research

Based on what has been found in this study;

1. It is recommended that replication studies be conducted in other locations in Kenya and results compared to see if there is any consistency or if the results were biased and subject to chance.
2. It is recommended that further study be conducted to investigate the reason as to why the relationships of the four variables were weak. To examine whether there are other factors that are major determinants of the dependent variable or if there are extraneous or moderating variables that influence this relationship more

3. Finally, further studies on how the independent variables in the study affect sustainability of adoption of lean logistics in other projects should be done

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APPENDICES

APPENDIX 1:

LETTER OF TRANSMITTAL OF DATA COLLECTION INSTRUMENTS

Eric Odok,
P.O Box 54305-00100
Nairobi,
26th October 2015

Dear Respondent,

RE: REQUEST TO PROVIDE RESEARCH INFORMATION

I am a student at the School of Continuing and Distance Education at the University of Nairobi doing a research study on *organizational factors influencing adoption of lean logistics; a case of visual workplace projects in Nairobi Bottlers Limited*. Towards my masters degree

You have been selected as one of the respondents to assist in providing information concerning your area of work. It's my humble request that you would spare a few minutes and answer questions in the questionnaire. The information provided will be used for academic use only, and will be handled with utmost confidentiality. Your identity will be anonymous and your name shall not be recorded.

Yours faithfully,

Eric Odok

APPENDIX 2: QUESTIONNAIRE FOR DATA COLLECTION

DATA COLLECTION QUESTIONNAIRE

This questionnaire intends to investigate organizational factors influencing adoption of lean logistics; A case of visual workplace projects in NBL. Your sincere and valuable responses are highly appreciated and will be treated with utmost confidentiality. Please tick or comment appropriately and return your completed questionnaire to the interviewer in charge. **Note;** respondent must not be coerced or enticed to participate. **Thank you**

Section A (Personal information)

Please tick your designation appropriately (√)

Designation

Distribution driver	
Forklift operator	
Distribution assistant	
Warehouse administrator	
Stock Controller	
Truck helper	
Checker	
Fleet Technician	
Load builder	
Distribution Team leader	
Warehouse Team Leader	
Fleet Team Leader	

How long have you worked in NBL?

- a) Less than 1 year
- b) Between 1 and 3 years
- c) Above 3 years

What is your highest level of education?

- Primary Secondary Tertiary University

Section B (Training and Adoption of lean logistics in visual workplace projects)

Please tick (√) appropriately using the scale where 1= strongly agree,2= agree, 3= neutral
4= disagree and 5= strongly disagree

	Statement	1	2	3	4	5
1	Need assessment is usually done before training on 5S and Kaizen					
2	There are many training programs offered to understand 5S and Kaizen					
3	Everyone required in the training attends without fail					
4	Training sessions on visuals are brief, concise and straight to the point					
5	There is elaborate consultation on the method of training that is applicable for 5S to work					
6	There are consistent performance reviews after training on 5S and Kaizen					
7	5S and Kaizen training offered is relevant to the current role					
8	Training on 5S and Kaizen is a major contributor to lean and efficient operations					
9	The absence of good training programs on visuals are potential risk of performance at work					
10	There is need for training programs to ensure that visual workplace works					

Section C (Communication and adoption of lean logistics in visual workplace projects)

Please tick (√) appropriately using the scale where 1= strongly agree,2= agree, 3= neutral
4= disagree and 5= strongly disagree

	Statement	1	2	3	4	5
1	There are different types of visuals in use in designated areas of work					

2	Bar graphs, charts , pictures and drawings are often mounted on boards and used at work					
3	Bar graphs, charts , pictures and drawings are easily comprehensible and easy to interpret					
4	All employees participate and contribute to development and interpretation of visual presentations					
5	Visual communication is applicable and relevant in various areas of work					
6	Visual aids are strategically placed and can easily be seen at the workplace					
7	There are periodic meetings on visual compliance					
8	There are constant replacement and review of visuals that are obsolete, fade or are not clearly visible					
9	Visual communication is a major contributor to good performance at the workplace					
10	Visuals are recommendable mechanisms for passing information across the workplace					

Section D (Organisation Culture and adoption of lean logistics in visual workplace projects)

Please tick (√) appropriately using the scale where 1= strongly agree,2= agree, 3= neutral
4= disagree and 5= strongly disagree

	Statement	1	2	3	4	5
1	Employees show interest in understanding 5S and Kaizen challenges in different areas of work					
2	Employees raise issues dealing with 5S and Kaizen in their places of work in real time					
3	Employees share their views without fear or intimidation on the workings of 5S and Kaizen					
4	Everyone's opinions concerning visuals are respected and considered at work					
5	Employees engage in social events regularly bringing team cohesion					
6	There is constant collaboration from employees and work is usually done within the shortest time possible and the best quality standards					
7	Employees are open and honest about the workings of 5S and Kaizen					

8	Conflicts in the organisation are solved urgently					
9	Suggestions boxes are stationed in different work stations to create anonymity and encourage feedback on 5S and Kaizen workings					
10	Values, attitudes and beliefs of employees are essential elements influencing performance of 5S and Kaizen					

Section E (Leadership and adoption of lean logistics in visual workplace projects)

Please tick (√) appropriately using the scale where 1= strongly agree,2= agree, 3= neutral
4= disagree and 5= strongly disagree

	Statement	1	2	3	4	5
1	There are regular meetings by leadership to discuss the performance of visuals in the workplace					
2	Leadership responds to 5S and Kaizen issues raised and give feedback constantly					
3	There is leadership commitment towards visual use at the workplace					
4	Top leadership embraces management by walking around (MBWA) policy to pick on the workings of 5S and Kaizen					
5	There are development plans for employees engaging in visual workplace projects or who desire to engage in them					
6	There is constant appreciation by leadership on performance based on visual use in different areas of work					
7	Managers attend employees social events regularly to create team cohesion					
8	Managers are easily accessible, to address issues emanating from 5S and Kaizen					
9	Managers are keen on 5S and Kaizen and periodically assess their performance					
10	Good leadership is recommendable for successful application of 5S and Kaizen at work					

Section F (lean logistics in Visual workplace projects)

Please tick (√) appropriately using the scale where 1= strongly agree,2= agree, 3= neutral
4= disagree and 5= strongly disagree

	Statement	1	2	3	4	5
1	Orders delivered in full as per the requirement of the customer have improved overtime					

2	Orders delivered on time as requested by customer have improved recently					
3	Fuel Ratio has improved overtime time					
4	Customer Complaints have really reduced with time					
	Product returns due to non-conformity or delivery windows have reduced overtime					
5	The cost of Repair and Maintenance has reduced tremendously					

Thank you for your responses!

APPENDIX 3:

TABLE FOR DETERMINING SAMPLE SIZE FOR A GIVEN POPULATION

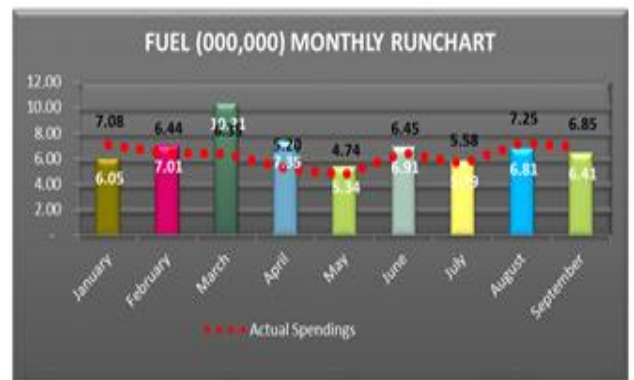
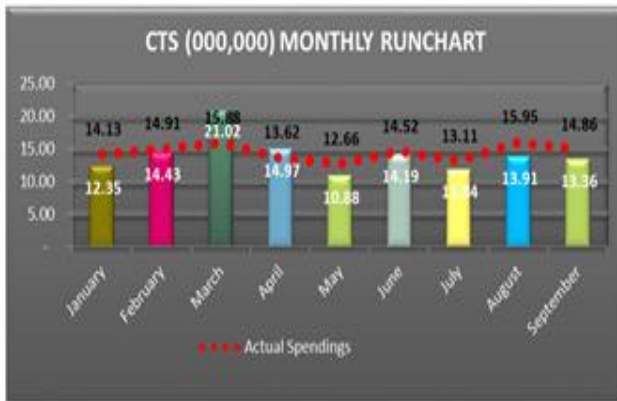
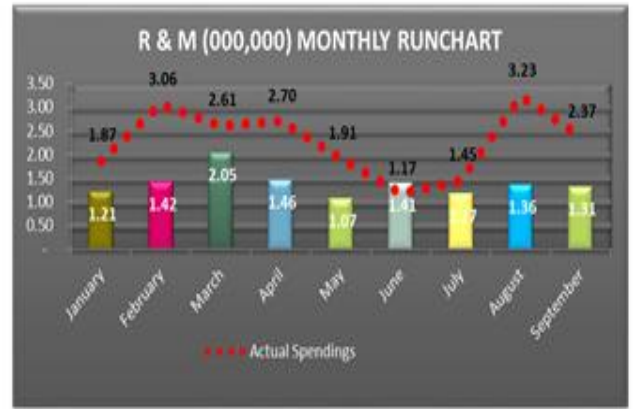
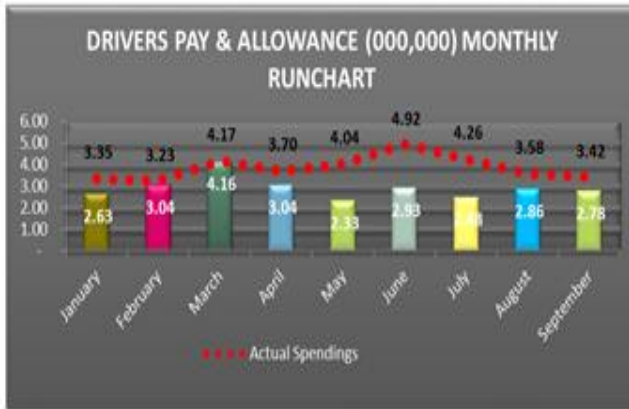
Table for Determining Sample Size for a Given Population									
N	S	N	S	N	S	N	S	N	S
10	10	100	80	280	162	800	260	2800	338
15	14	110	86	290	165	850	265	3000	341
20	19	120	92	300	169	900	269	3500	246
25	24	130	97	320	175	950	274	4000	351
30	28	140	103	340	181	1000	278	4500	351
35	32	150	108	360	186	1100	285	5000	357
40	36	160	113	380	181	1200	291	6000	361
45	40	180	118	400	196	1300	297	7000	364
50	44	190	123	420	201	1400	302	8000	367
55	48	200	127	440	205	1500	306	9000	368
60	52	210	132	460	210	1600	310	10000	373
65	56	220	136	480	214	1700	313	15000	375
70	59	230	140	500	217	1800	317	20000	377
75	63	240	144	550	225	1900	320	30000	379
80	66	250	148	600	234	2000	322	40000	380
85	70	260	152	650	242	2200	327	50000	381
90	73	270	155	700	248	2400	331	75000	382
95	76	270	159	750	256	2600	335	100000	384

Note: "N" is population size
"S" is sample size.

Source: Krejcie & Morgan, 1970

APPENDIX 4:

NBL YEAR TO DATE (YTD) LOGISTICS PERFORMANCE RUN CHARTS



APPENDIX 5:

NBL BUDGET HEADCOUNT AUGUST 2016

NBL BUDGET HEADCOUNT 2016			July 2016		August 2016	
FUNCTION	HEADCOUNT CATEGORY	HEAD COUNT 2016	July Appoint's	YTD Total actuals	July Appoint's	YTD Total actuals
Volume (Unit Cases) 39868						
CENTRAL PLANNING	Permanent	9	0	7	0	7
	Temporary	1	0	1	0	1
	Casuals	0	0	0	0	0
	Outsourced	0	0	0	0	0
	GIT's	0	0	0	0	0
	Total Heads	10	0	8	0	8
CUSTOMER SERVICES (Without Trade Services)	Permanent	325	0	220	0	220
	Temporary	115	0	173	0	173
	Casuals	84	0	77	0	90
	Outsourced	0	0	0	0	0
	GIT's	0	0	0	0	0
	Total Heads	524	0	470	0	483
MD OFFICE	Permanent	2	0	2	0	2
	Temporary	0	0	0	0	0
	Casuals FTE	0	0	0	0	0
	Outsourced	0	0	0	0	0
	GIT's	0	0	0	0	0
	Total Heads	2	0	2	0	2
COUNTRY TEAM + PAC	Permanent	10	0	9	0	9
	Temporary	0	0	0	0	0
	Casuals FTE	0	0	0	0	0
	Outsourced	0	0	0	0	0
	GIT's	0	0	0	0	0
	Total Heads	10	0	9	0	9
FUNCTION	HEADCOUNT CATEGORY	HEAD COUNT 2016	July 2016		August 2016	