

**OPERATIONS MANAGEMENT PRACTICES AND FIRM PERFORMANCE
OF MOTOR VEHICLE ASSEMBLY COMPANIES IN NAIROBI, KENYA**

BY

BERNARD NYAGAKAH OBINO

**A RESEARCH PROJECT PRESENTED IN PARTIAL FULFILMENT OF
THE REQUIREMENT FOR THE AWARD OF THE DEGREE OF MASTER
OF BUSINESS ADMINISTRATION, SCHOOL OF BUSINESS, UNIVERSITY
OF NAIROBI**

DECEMBER, 2018

DECLARATION

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

Signature.....

Date.....

BERNARD NYAGAKAH OBINO

This research project has been submitted for examinations with my approval as the university supervisor.

Signed.....

Date.....

ERNEST O. AKELLO

Lecturer,

School of Business,

University of Nairobi

DEDICATION

To my beloved wife Emily, my sons Ryan and Timona, daughter Samara and my parents James Obino and Esther Sarange

ACKNOWLEDGEMENT

I take this opportunity to thank the almighty God for according me the opportunity to undertake the research study.

I also extend my gratitude to my supervisor, Mr. Ernest Akello, moderator, Dr. Peterson Magutu, the University Management and in particular School of Business

TABLE OF CONTENTS

DECLARATION.....	ii
DEDICATION.....	iii
ACKNOWLEDGEMENT.....	iv
LIST OF TABLES	viii
LIST OF FIGURES	ix
LIST OF ABBREVIATION AND ACRONYMS	x
ABSTRACT.....	xi
CHAPTER ONE: INTRODUCTION.....	1
1.1 Background of the Study.....	1
1.1.1 Operations Management Practices	2
1.1.2 Firm Performance	3
1.1.3 Motor Vehicle Assembly Companies in Kenya	4
1.2 Research Problem.....	6
1.3 Research Objectives	8
1.4 Value of the Study.....	9
CHAPTER TWO: LITERATURE REVIEW.....	10
2.1 Introduction	10
2.2 Theoretical Foundation	10
2.2.1 Production Competence Theory	10
2.2.2 Theory of Constraints	12
2.3 Operations Management Practices	13
2.4 Firm Performance.....	17
2.5 Empirical Literature Review	19
2.6 Conceptual Framework	22

CHAPTER THREE: RESEARCH METHODOLOGY	24
3.1 Introduction	24
3.2 Research Design	24
3.3 Population of the Study	24
3.4 Data Collection.....	25
3.5 Data Analysis	25
CHAPTER FOUR: DATA ANALYSIS, RESULTS AND DISCUSSION	27
4.1 Introduction	27
4.2 Demographic Information	27
4.2.1 Response Rate	28
4.2.2 Position of the Respondent.....	28
4.2.3 Duration of Working in The Current Position	29
4.3 Operations Management Practices adopted by motor vehicle assembly firms in Nairobi, Kenya	30
4.3.1 Quality Management	31
4.3.2 Supply Chain Management	32
4.3.3 Maintenance.....	33
4.3.4 Work and Job Design	35
4.3.5 Layout Design.....	36
4.3.6 Process Design.....	38
4.3.7 Scheduling	39
4.4 Operations Management Practices and Firm Performance	40
4.4.1 Return on Assets.....	40
4.4.2 Market share	41
4.4.3 Product Quality.....	42

4.4.4 Customer satisfaction	43
4.5 Challenges Faced in the Adoption of Operations Management Practices	44
4.6 Model Summary	45
4.7 Analysis of Variance	47
4.8 Regression Coefficients.....	47
4.7 Discussion	49
CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATIONS	52
5.1 Introduction	52
5.2 Summary of the Findings	52
5.3 Conclusions	53
5.4 Limitations of the Study	55
5.5 Implications of the Study	57
5.6 Recommendations	58
5.7 Suggestions for Further Research	61
REFERENCES.....	62
APPENDICES	66
Appendix I: Questionnaire	66

LIST OF TABLES

Table 4.1: Response Rate	28
Table 4.2: Position of the respondent.....	29
Table 4.3: The duration of working in the current position	30
Table 4.4: Quality Management.....	31
Table 4.5: Supply Chain Management	32
Table 4.6: Maintenance	34
Table 4.7: Work and Job Design.....	35
Table 4.8: Layout Design	37
Table 4.9: Process Design	38
Table 4.10: Scheduling.....	39
Table 4.11: Return on Assets	40
Table 4.12: Market share.....	41
Table 4.13: Product Quality	42
Table 4.14: Customer satisfaction.....	43
Table 4.15: Challenges Faced in the Adoption of Operations Management Practices	44
Table 4.16: Model Summary.....	45
Table 4.17: Analysis of Variance.....	47
Table 4.18: Regression Coefficients	47

LIST OF FIGURES

Figure 2.1: Conceptual framework.....23

LIST OF ABBREVIATION AND ACRONYMS

AVA	Associated Vehicle Assemblers Ltd
COMESA	Common Market for East and Southern Africa
KMI	Kenya Motor Industry
SBSC	Sustainable Balanced Score Card
SMEs	Small and Medium Enterprises
SPSS	Statistical Package of Social Sciences
TOC	The Theory of Constraints
TQM	Total Quality Management

ABSTRACT

The objective of this research was to study the effect of operations management practices and firm performance of major vehicle assembly companies in Nairobi, Kenya. This was achieved through the following specific objectives; To establish the operations management practices adopted by motor vehicle assembly firms in Nairobi, Kenya; To establish the relationship between operations management practices and firm performance of motor vehicle assembly firms in Nairobi, Kenya; and to establish the challenges faced in the adoption of operations management practices by motor vehicle assembly firms in Nairobi, Kenya. This study adopted a descriptive research design to formulate a problem for more clear investigation as well as discovery of ideas and thoughts. The population of the study comprised 7 motor vehicle assembly firms in Nairobi, Kenya. The motor vehicle assembly segment includes the following companies: General Motors East Africa, Kenya Vehicle of Manufacturers, Mobius Motors, Toyota Kenya, Associated Vehicle Assemblers Ltd (AVA), Peugeot, Uryisia Limited and TVS Motors Kenya. The research study used primary source of data. Primary data collected through self-administered questionnaires and it was collected through a drop and pick later method to the firms. The data collected was analyzed using descriptive statistics and regression analysis. The research utilized One-way ANOVA to establish the significance of the regression model from which a 0.013 probability value was determined. The research findings indicate that the regression link was highly substantial in calculating the manner in which the independent variables (operations management practices) affect firm performance of motor vehicle assembly companies in Nairobi. From the results it was clear that quality management, scheduling, process design, work design, supply chain management and layout design were statistically insignificant whereas Capacity designs was found to be statistically significant. The study recommends that the motor vehicle assembly firms also ought to listen to their internal and external teams. Field-level employees, internal sales, and vendors have invaluable information and know what is going on with the product/services and the competition. Measure and analyze. There ought to be constant examining of internal processing times and employee performance and measuring success rates. Measuring internal performance allows the organization to exceed customer demand. Network ought to be expanded. Managers from competitive firms change jobs. A friendly relationship should become a key alliance. Vendor partnerships in developing new products/services allow growing of substantially as well as increasing knowledge base while increasing speed to market. There should be a good communication in place. It ought to be considered that processes, rules, and policies are well-communicated to everyone. There should be a smart marketing plan and be up to date. There should be patterning of marketing plan after anything that is on trend. It ought to be conducted immediately, using a concrete plan with a timeline until a new trend arrives. Also weekly reports of everything about the company ought to be available. The organization should keep current on innovation trends, and take time to listen to suggestions of tech-savvy employees; it ought to only use technology that is simple to use and engaging employees at every skill level; invest in capacity building for managers and employees on the goals of implementing new systems; and make sure it builds in rewards so that everyone is motivated to learn and use new technology.

CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

The recent business environment is growing to be more challenging. Companies therefore have to increase their business operations to stay competitive. As such, one of the most important factors for improving business operations is implementing of operations management practices that will translate into improved firm performance. Firm performance remains of great concern for the modern day organizations, be it private, public, profit or nonprofit organization (Mkalama, 2014). To accomplish this goal, operational design and functions of management play a key role in the automotive industry. Continuous training of employees on current consumer needs, provision of resources and relationships with suppliers and stakeholders will contribute towards maximizing returns and cost (Battistoni, Bonacelli, Colladon, & Schiraldi, 2013).

Operations Management practices are internal factors that contribute to competence development; therefore, they can offer competitive advantages for firms. In this sense, they create competences that can be used as weapons for firms to enhance their Firm performance (Battistoni, Bonacelli, Colladon, & Schiraldi, 2013). Incline generation is as of now the standard in worldwide assembling, the same as aggregate administration, six sigma and ISO accreditation. Future operations activities will probably be connected with quick reaction to market request, ecological or political change, with utilization of new advances, for example, added substance layer fabricating, with overseeing developed or dispersed supply chains, with information investigation, and with to a great degree quick time to specialty markets for inventive new items (Russell, 2007).

Russel (2007) posted that operations practices are more than planning and controlling. It entails taking full advantage of available resources, time and decision making processes. There are many undertakings that are interdependent and incorporated in operations management to attain the desired levels of efficiency and effectiveness depending on how well these factors are organized. These operations management practices include product and service design, process design, facility layout, inventory control, planning and control, people and job design, facilities improvements, organization for quality among others. Plant facilities are essential in delivering goods and services to consumers. Sound scheduling three programs put in place will facilitate the efforts of the other practices in driving the organization to achieve its goals. Skilled manpower means that right decisions will be made to produce products and services that meet the consumer's needs (Byegon, 2015). The difficulties confronting the motor vehicle assembly firms in Kenya such as operational challenge has therefore, motivated a study on the effect of operations management practices and performance of motor vehicle assembly companies in Kenya.

1.1.1 Operations Management Practices

Operations management is a management function responsible for enhancing efficiency in an organization. Pearson (2010) observed that operations managers are accountable to all the activities in the organization which contribute to ensure smooth efficient service delivery. Management seek to achieve high efficiency levels in an organization is achieved the through application of operations management practices. As stipulated by Krajewski, Ritzman and Malhorta (2013) operations management practices refers to the business practices applied by an organization to ensure inputs (raw materials, energy and labor) are converted to output (goods and/or services) with minimum resources (time and money).

These business practices include process design, product and service design, Total quality management, facility layout, people and job design, inventory control, planning and control, improvement of facilities, quality control organization for quality among others.

Total Quality Management (TQM) is a measure used by management of an organization to continuously improve on the quality of its product and services. Six Sigma is a tool and technique developed to help improve the performance and decrease defects hence quality products and services (Krajewski, Ritzman & Malhorta, 2013). Kaizen or continual improvement refers to business practices that builds and enhance all functions and involve all employees from the top management. In this unique situation, a standard is characterized as an arrangement of approaches, principles, mandates and methods built up by administration for every real operation. By improving standardized programmes and processes, kaizen aims to eliminate waste. Process, product and service design refers to the ideas behind the development of a product or service (Luchs & Swan, 2011).

1.1.2 Firm Performance

Firms today seek to make more profits, achieve higher market share and gain a competitive advantage, all these business objectives is dependent on Firm performance. The activities pursued by an organization to achieve its mission are make organization's performance visible. Firm performance involves a review of organizations actual results against desired output. Hubbard (2009) defines Firm performance as the achievement of various outcomes and results efficiently and effectively. The success of a business is measured by its ability to achieve its set goals effectively using its resources efficiently. Richard (2009) states that firm performance entail the financial and non-financial measures. The measurement of

performance can be expressed in terms of parameters or indicators that are complimentary and sometimes contradictory (Kaplan & Norton, 1992).

Kaplan and Norton (2008) agree with the view that quality improvement must be a process unto infinity. Performance is the goal of every organization. It refers to the end result of activities while strategic planning aims to improve these results. Kaplan and Norton first introduced the balance scorecard, in 1992, to complement the existing financial performance measures (Kaplan & Norton, 1992). This is what is today referred to as the sustainable balanced score card (SBSC) which includes financial, customer service, internal business processes, organizational learning and development, environmental integrity and social equity measures. Measuring firm performance enable an organization to transform the raw potential of human resource into performance by removing intermediate barriers as well as motivating and rejuvenating the human resource (Kaplan & Norton, 2008).

1.1.3 Motor Vehicle Assembly Companies in Kenya

The motor vehicle industry in Kenya consists of the assembly segment, retail and the distribution segment. The motor vehicle assembly segment includes the following companies: General Motors East Africa, Kenya Vehicle of Manufacturers, Associated Vehicle Assemblers Ltd (AVA), DT Dobie for Volkswagen and Mercedes Benz and TVS Motors Kenya (PricewaterhouseCoopers, 2017). These assembly plants mainly assemble pick-ups and heavy commercial vehicles. Motor vehicle dealers operating in Kenya, with the most established being Toyota (East Africa), Cooper Motor Corporation, General Motors, Simba Colt and DT Dobie. The motor vehicle assembly companies in face stiff competition from imported used vehicles, which accounts for 70% of the market sales,

from United Arab Emirates and Japan. On the other hand, the assembling industry provides investment opportunities due to factors such as large market (East African Community and COMESA regions). The Common market and the East African Community provide a market of more than 130 million residents across the region (PWC, 2012).

The industry has seen substantial developments over the recent years as foreign investment and a number of key players are returning to revive the local motor vehicle assembly industry of Kenya. They include: Peugeot, the French car maker closed its assembly plant in Kenya, back in 2002. Volkswagen similarly a key player, has already gone in with the present line of production. It has been utilizing the Thika based Kenya Vehicle Manufacturers plant to produce the Polo Vivo line of automobiles, instituted in the markets of Kenya in December, 2016 and has intended to increase the production to 1000 units annually. Toyota similarly launched a bus assembly plant in Changamwe-Mombasa back in 2013 and is aiming to enhance its assembly capacity by discovering new initiatives (PricewaterhouseCoopers, 2017). Mobius Motors also launched in 2009, introduced a local assembled lowest priced vehicle that has been entirely intended to perform on the rough terrains as well as Kenya's off-road drives (Kenya Motor Industry Association, 2016).

These major developments have been attributed to a number of the Kenyan government policies for instance exempted excise duty on the production of locally assembled automobiles, lowered the import duty on parts which will be used in assembling in the local plants, explored options to support the development of supplementary industry that would facilitate the local production of affordable-quality automotive components, investment in the power sector to enhance power production thereby facilitating the automotive industry. Similarly, as a result of ideal economic policies, automotive manufacturers have spotted

Kenya as the ideal investment platform to enter into East as well as Central African markets and enhance their business (Karuga, 2017).

The motor vehicle assembly industry in Kenya has been of great importance to the Kenyan economy. For instance, it helps in generating new employment opportunities for Kenyans. It enables transfer of technology as well as skills. It aids in Improving Kenya's score in World Bank's Ease of Doing Business ranking and therefore inviting foreign investments. The motor vehicle assembly industry is similarly important to the government as it brings more streams for direct as well as indirect taxes, which are important for Kenya's economic growth. The industry is at the beginning of a new prospect and it will take time for the improvements to take form and have significant impact in Kenya. The sector therefore needs patience, considering the potential it holds (Karuga, 2017).

Despite these key milestones the industry is facing a major challenge of the increasing number of second-hand vehicles that enter the country, thereby undermining the market for locally assembled vehicles, constraining its growth. Presently, according to the Kenya National Bureau of Standards (KNBS), second-hand vehicles constitute approximately 80 per cent of vehicles imported in Kenya annually. Also, Kenya faces stiff competition from other African competitors in the East African region such as Ethiopia (Kenya Motor Industry Association, 2016).

1.2 Research Problem

A crucial element for successful firm performance in industrial firms is essential operations management practices. Many operations management rehearses thought to be powerful in enhancing operational execution is gathered in "incline" classification. Russell (2007)

proposes these activities, for example, the aggregate administration and persistent change projects, are sections of incline and are classified as above. The activities advancing hence blending with the end goal that they speak to an assortment of best operations management practices.

Automotive industry in Kenya is characterized by high competition due to locally assembled vehicles and the importation of second hand vehicle from Japan and United Arab Emirates. The industry is expected to experience growth due to factors such as the rise of middle income population, large market such as the common market and east Africa (Byegon & Richard, 2015). Organizations employ various business practices in order to achieve high efficiency which results into their performance. Operation management practices have been embedded and remain a key driver helping the business run successfully, raising the need to look into these practices and how they have been influenced by organizational culture.

Kushwaha (2013) conducted a research on operational performance through Supply Chain Management Practices in India paint industry. The findings of his study revealed that, firms that adopted operations management practices had a significant performance. Serfontein (2010) did a study on the effect of key leadership on the operational system and performance of business institutions in South Africa. His findings indicated that performance and strategic leadership have a positive correlation. Battistoni (2013) reviewed Small and Medium Enterprises in Italy; his study findings revealed that operations management practices had a positive influence on a firm's performance. He pointed out the value of this positive association to be carefully taken into account by management, in order to implement best practices that can affect revenue and efficiency.

Sharif (2010) found that Safaricom's M-pesa service employed operations strategies to succeed in the mobile money transfer business. He concluded that the company has aptly employed innovation strategy as an operations strategy in order to keep M-Pesa ahead of competition as well as to make the service more attractive to various types of clientele. Kawa (2013) evaluated the effects of automation on operational performance and found that it's a key pillar towards improved performance though not in isolation. Kariuki (2014) investigated, "the relationship between green operations practices and Operational Performance of Hotels in the Coastal region in Kenya" and revealed that there are positive results for firms implementing green operations. As indicated by the studies listed above, it can be noted that the existing studies did not focus on operations management practices and firm performance of major vehicle assembly companies in Kenya. Therefore, study sought to determine the effects of operations management practices and firm performance of major vehicle assembly companies in Nairobi, Kenya hence the research question: what was the effect of operations management practices and firm performance of major vehicle assembly companies in Nairobi, Kenya?

1.3 Research Objectives

The objective of this research was to study the effect of operations management practices and firm performance of major vehicle assembly companies in Nairobi, Kenya. This was achieved through the following specific objectives;

- i. To establish the operations management practices adopted by motor vehicle assembly firms in Nairobi, Kenya.
- ii. To establish the relationship between operations management practices and firm performance of motor vehicle assembly firms in Nairobi, Kenya.

- iii. To establish the challenges faced in the adoption of operations management practices by motor vehicle assembly firms in Nairobi, Kenya.

1.4 Value of the Study

These study findings were valuable to the management of vehicle assemblies in Kenya as it enabled them make informed decisions regarding adoption of operations management practices in enhancing their operations and improve firm performance. These were in the long term to enable them to survive as well as succeed and meet stakeholder expectations.

To the policy makers, the findings as well as recommendations of these study enabled them enhance accuracy and effectiveness in the policies they formulate with respect to the motor assembly industry. The findings of this study similarly enabled regulatory bodies make informed decisions to introduce new regulations on the management of motor vehicle assembly companies in Kenya.

The findings of this study similarly were significant to future researchers and scholars as the information formed a basis for their literature review, establishment of knowledge gaps and proving a guide towards a particular school of thought. This study contributed to the body of knowledge by filling the existing knowledge gap and providing fact based theoretical foundation for questions relating to relevance of operations management practices to firm performance.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This chapter contains a review of literature relating to the subject of operation management practices and firm performance as presented by various researchers. This includes a theoretical foundation, a discussion on operations management practices, and firm performance. Empirical studies done on this subject will also be looked into.

2.2 Theoretical Foundation

Several researchers have advanced various theories that relate operations management practices and firm performance. This research will be based on the production competence theory and the theory of constraints theories that explain the effect of operations management practices on the performance of an organization.

2.2.1 Production Competence Theory

The production competence theory was initially advanced by Cleveland, Schroeder and Anderson. This intuitively appealing proposition asserts that production competence leads to improved business performance (Cleveland, Schroeder, & Anderson, 1989). The theory argues that competence in production directly affects the performance of the company. Production competence according to this theory refers to the preparedness, skill, or capability that enables manufacturers to prosecute a product-market specific business strategy. Production competence is also viewed as a variable attribute rather than a fixed one because it demands reference to the business strategy.

The skills and capabilities possible for manufacturers are diverse and Cleveland, Schroeder and Anderson identified adaptive manufacturing, cost-effectiveness of labour, delivery performance, logistics, production economies of scale, process technology, quality performance, throughput and lead time, and vertical integration as nine important categories of these skills and capabilities (Schmenner & Vastag, 2006). Within each category there are other possible variables. Following the reasoning put forth by this theory, one should expect that given a particular business strategy, certain capabilities of a plant, captured by a variety of variables that depict production practices, manufacturing choices, or performance measures, may be highly valued by the market-place and result in a high rank-in-industry rating for that plant. In the same way if the plant's capabilities are meager, one would expect a low rank-in-industry rating for the plant no matter what business strategy is pursued. In this theory performance of a firm lies more not on what the firm does but how it is done.

This study looks at the effect of operations management practices on firm performance in motor vehicle assembly companies in Kenya. In this study it will be possible with the guidance of the production competence theory to determine operation management practices that relate to adaptive assembly, cost-effectiveness of labour, supply chain management, logistics, production economies of scale, process technology, quality management, throughput and lead time that relate to capacity management, and vertical integration.

2.2.2 Theory of Constraints

The theory of constraints is a management philosophy that was introduced by Eliyahu Goldratt in 1984. This theory concentrates on improvement and is based on the premise that any manageable system, including manufacturing plants, is limited in achieving more of its goals by a very small number of constraints. This theory then suggests that in order to perform better or for continuous improvement, every manageable system has to deal with those constraints. The argument in this theory is that if there was nothing preventing a system from achieving higher throughput, then its throughput would be infinite which is impossible in real life situation.

The theory of constraints (TOC) is governed by the five focusing steps: identify the system's constraint(s); decide how to exploit the system's constraint(s); subordinate everything else to the two earlier decision(s); elevate the system's constraint(s); and a warning that if in the previous steps a constraint has broken then the process should be repeated but not let inertia cause a system's constraint. From TOC a constraint is defined as anything that prevents the system from achieving its goals. At the point when seen from a utilitarian viewpoint (e.g. the operations work), a rundown of issues, regularly approximately characterized as limitations, can be entirely long, speaking to issues in every capacity or division (Gupta & Marquez, 2005). In any case, the chain similarity proposes that not all issues can be the weakest link(s) in the chain; some issue must be the most critical as for the association's capacity to move toward its objective (Mbolonzi, 2016). This weakest connection could be an asset the organization does not have enough of (a physical limitation) or absence of market interest for its items, poor associations with suppliers, or different strategies, techniques or methods for considering. Mbolonzi (2016)

says that these last sorts of requirements are alluded to as non-physical imperatives. Hence, it is conceivable, for instance, that the operations work does not have a sufficient particular asset or a particular asset is not used legitimately because of some strategy limitations, consequently restricting the execution of the whole association of other assets, offices and procedures. The constraints can be internal or external to a firm. Internal constraints are for instance when the market demands more than is being produced and external constraint is when the system produces more than the market can handle.

The aim of any motor vehicle assembly company is to increase performance, both financial and non-financial. The operations management practices adopted therefore are aimed at the end result of better, improved performance. The relevance of this theory lies in identifying the constraint(s) in operations that prevents the assembly companies from achieving maximum performance and then adopting practices that aid in achieving organizational goals.

2.3 Operations Management Practices

Operations management is an area of management concerned with designing and controlling the process of production and redesigning business operations in the production of goods and services. Operations management involves planning, organizing and supervising processes, and making necessary improvements for higher profitability. The adjustments made in the operations have to support the organizations strategic goals and therefore have to be preceded by a deep analysis and measurement of the current processes. Heizer and Render stated that differentiation, cost reduction and feedback can be achieved when managers use 10 areas of operations management for effective decision making (Heizer & Render, 2006). These in wholesome can be referred to as operations decisions.

The 10 operation decision areas that maintain the mission and implement management strategies are discussed.

Design of goods and services defines much of the transformation process. Capacity, cost of production and quality of requirements are all determined at this stage. Due to the difference in that goods are tangible and services intangible, operations practices in the manufacturing and service industry have distinct characteristics. Appropriate outputs can then be achieved with proper design and random quality checks during the production process (Anyona, 2016). The feedback from random checks is used to develop appropriate feedback measures.

Conversion processes involve a combination of volume and variety in meeting market demand. The design of processes and capacity is of greater importance in the production of goods than of services. Operations management should decide what process, what type of technology and to what extent, human resources, quality and maintenance that determines its basic cost structure. Services operation decision is much simpler and consists of processes that directly involve the customer therefore investment in expertise is vital. Through proper process and capacity design, the right quantity of production is achieved hence maintaining steady supply and steady sales turnover (Krajewski, Ritzman, & Malhorta, 2013).

Layout design is concerned with the site and office design in relation to the organization of people, machines, warehouses, walkways for safety and marked service zones (Russell & Taylor, 2007). Material flow, process selection technology use, capacity needs, worker's

needs, inventory requirement and capital influence the decision for layout design. In service provision, the nature of service being offered determines the layout design.

Human capacity in coordinating systems and processes, and decision making is critical in an organization. Decision areas point out general and specific practices within an organization that employment terms are anchored in an easy manner, improve knowledge, and nurture and develop employees (Anyona, 2016). The elements of work and job design are behavioral features which affect workers motivation and physical effects of work such as interaction with equipment and the work environment.

According to Henzer (2004) location is assumed to be an area where management has set up as an office. This should be strategically placed for easy access and for attracting global customers. Where physical goods are involved, the selection of the location will be determined by availability of workforce, raw materials, technology, and market and government policy. For services which are offered directly to clients, centers of service should be positioned close to consumer and consider transport networks and services that are affordable.

Market preferences and trends change over very short periods of time. To keep abreast with the customers, firms require flexible processes and systems to produce goods and services that meet the standards. Customers' loyalty is swayed with quality and durability of products more than the cost. In service industry, quality involves early prediction of customer demand and preferences, completeness, consistency, durability and convenience and feedback. UNIDO (2010) says there is a variation in Good Manufacturing Practice

(GMP) among local firms. Some firms have made investments to meet these standards while others are deterred from making upgrades.

Decisions that have to take place on how to move raw materials from the supplier to the manufacturer and finally the delivery of finished products to the customer. The decisions will include products to be produced, supplier of the product and cost of delivery to the customer (Henzer, 2004). This mainly apply in inventory control decisions to ensure the demand is met at the right time for customer satisfaction, and reduce holding cost, whereas availability of raw materials and adequate capacity will ensure continuous production. Holding of inventory should be minimized to reduce cases of damage due to congestion of poor storage (Henzer, 2004).

Scheduling deals with efficient ways of allocating, controlling and managing human resources, goods and materials to ensure efficient production of finished products. Systematic allocation applies more in manufacturing sector as compared to service industry, attention is channeled to customers in the provision of services, therefore, adequate staffing and clear direction of where services are provided on a timely way is necessary (Henzer, 2004).

Maintenance ensures a continuous production and service delivery; therefore, decisions must be made regarding the desired level of system. The system should be stable and reliable at all times otherwise the companies risk losing customers to competitors. Preventive maintenance consists of maintenance activities performed before an equipment breakdown, with the intent of keeping it operating. Corrective maintenance consists of

efforts to restore facilities and equipment to satisfactory functioning condition after a breakdown (Heizer & Render, 2006).

2.4 Firm Performance

Spitzer (2007) noted that firm performance entail how well an organization is doing to attain its vision, mission, as well as goals. According to Boselie, Paauwe and Richardson (2003), firm performance entails evaluation of a firm's performance against its objectives as well as goals comprising real results or outputs with regard to anticipated outputs. Jenatabadi (2015) state that firm performance entails evaluation of performance of company in relation to objectives. The analysis focuses on three main outcomes, first, shareholder value performance; second, financial performance; and third, market performance. Louise (2012) refers to organizational performance as the actual output or results of an organization as evaluated against its intended outputs (or goals and objectives). It is a wide-ranging concept that encompasses what organizations embark on, produce, as well as attain for a number of areas with which they interact. Firm performance is a wide-ranging construct that is relied upon by prudent organization leaders on a number of measures of performance when evaluating the success or failure of their entities.

Financial measures of firm performance comprise of gross profit margin which evaluates the amount of money made after taking into account direct costs of sales. Financial operating margin is another measure lying between the gross and net profitability measures. It considers overheads, rather than interest as well as tax payments, similarly referred to as the EBIT (earnings before interest and tax) margin. Net profit margin is another financial measure of goal achievement that narrowly measures of profits, and considers both direct and indirect costs. Therefore, all overheads, and interest as well as tax payments, are

considered in calculation of profit. Lastly is the return on capital employed (ROCE) which computes net profit in terms of percentage of the aggregate capital employed in the organization. This helps in observing how well the funds invested in the organization are performing matched with different investments that could possibly be made with it (Carter, Day and Klein, 2002).

Non-financial measures of firm performance include customer retention as well as churn. Retention refers to the number of customers that will keep on purchasing from the organization whereas churn refers to the number of current customers who do not purchase the products or services of the organization anymore. Customer experience is another non-financial measure that directly influences customer retention as well as churn. This entails the point of interaction between the customer and the organization. Lastly is innovation which is the capacity to introduce new products or services effectively into the market. The amount of new products in the channel as well as the rate of their adoption replicates the organization's capacity give value to the customers as well as the market (Khan, Halabi and Khan, 2011).

Benchmarking is similarly an essential means of measuring the firm's performance as well as its potentials by comparing with different firms. It is important to compare against firms in similar sector. The market position as well as the goals of the firm however, influences certain comparisons that are made by the firm. For instance, firms in a congested sector may want to benchmark itself against goal achievements in the sector. But a business targeting rapid and significant growth may choose comparisons with an established market leader. Benchmarking can similarly be done internally within the firm. For instance,

comparing absenteeism rates between divisions could help extend working practices from the most goal achieving units of the organization (Smith, 1993).

2.5 Empirical Literature Review

There are number of literature that have been put forth internationally outside Kenya and locally in Kenya on both the concepts of operations management practices as well as firm performance.

Delaney and Huselid (1996) also carried out a research to explore the effect of human resource management practices on perceptions of organizational performance. The study adopted a survey methodology on 590 for-profit as well as nonprofit organizations. The results of the study established that there was a positive correlation between human resource management (HRM) practices, for instance training and staffing selectivity, as well as perceptual organizational performance measures. The findings similarly showed that there were methodological issues for concern in evaluations of the association between HRM systems and organizational performance.

Paul and Anantharaman (2003) in their research sought to evaluate the effect of people management practices on organizational performance. A sample of 190 companies based in Australia was used in the study whereby the methodology adopted was by way of questionnaires to get the responses of operations managers and directors of the companies. The findings of the research indicated that the performance of a service company is swayed significantly by the antecedents of operations scheduling, service process, as well as logistics capabilities. Similarly, the study established that operations scheduling and service process have a strong influence on the efficiency of the company.

Capkun, Hameri, and Weiss, (2009) conducted a study on the correlation between inventory performance and financial performance among manufacturing firms. The research covered 52,254 manufacturing firms from the year 1980 to 2005. The correlation between inventory levels and financial performance was determined through multiple regressions. Inventory performance is an aspect in operations management and data analysis output revealed a positive correlation. Gross mark-up and operating income were used as a measure for financial performance, while inventory levels was measured by use of unprocessed materials, partially manufactured products and finished products.

Battistoni et al. (2013) in their study sought to evaluate the influence of operations management practices on performance. The study adopted a case study methodology to measure the possible correlations among Operations Management practices and the performance of SMEs. The results of the study established that there is a significant association between Operations Management practices and Firm Performance as a result of the specific indicators adopted to measure performance. The findings similarly revealed that there was a significant positive connection between Operations Management Practices and Performance (with a value of 0.48) at a level of 0.05.

Jimoh et al. (2018) investigated the effect of total quality management practices (TQM) on performance among large- and medium-sized construction firms in the Nigerian construction industry. The methodology adopted by the study was by way of structured questionnaires that were self-administered to 155 medium as well as large-sized construction firms. Thorough factor analysis and partial least square structural equation modeling indicated that TQM practices have significantly influenced organizational performance.

Wafula (2016) carried out a study aimed at establishing operations management practices in electric utility firms in Kenya. The methodology employed by the study was by way of designed questionnaire, as questionnaires. The secondary data on performance was sourced from the electric utility companies end year financial report. The findings indicated that there is a chance of enhancing the activities of the firms by staff. It was similarly revealed that the operation costs in the companies had reduced as a result of enhanced undertakings in the organization indicating their efficiency.

Anyona (2016) studied operational management practices and performance of telecommunications firms in Kenya. The study aimed at establishing the effects of operations management practices on the performance of telecommunications firms in Kenya. The study employed both primary as well as secondary data using a structured questionnaire instrument. Supplementary information was similarly sourced from appropriate publications as well as websites of these firms. An analysis of the firms revealed that they all had an operations management department tasked with determining the most appropriate operations management practices, the most vital area include; maintenance, scheduling, supply chain management and inventory management practices. It was similarly established that there was a significant effect of the operations management practices adopted on the performance the firms.

Mbolonzi (2016) in his study sought to evaluate the influence of operations management practices and performance of Schneider Electric Kenya. The study adopted an exploratory case study by focusing on Schneider Electric Kenya. The results of the study showed that total productive maintenance, total quality management, international lean practices, just in time, six sigma and continuous improvements are operations management practices that

aid in decreasing time for new item's advancement and commercialization and also ensures flexibility of organization in adapting to different production capacity thereby resulting in overall improvement in reliability and reduction of costs.

Lwiki et al. (2013) in their study sought to analyze the influence of inventory management practices on performance in sugar manufacturing companies in Kenya. The study methodology was by way of a survey that was carried out on 8 sugar manufacturing firms in Kenya. The results of the study established that there is generally positive correlation between each of inventory management practices. The level of inventory management practices were the main determinants of specific performance indicators. A strong correlation had erupted between Return on Equity and inventory management practices (supplier partnerships and lean inventory).

2.6 Conceptual Framework

The use of operational management practices by vehicle assembly companies, results in improved efficiency, effectiveness, reduced operating costs, improved quality and customer satisfaction and consequently improved firm performance. Operations management practices are the independent variable while Firm performance is the dependent variable.

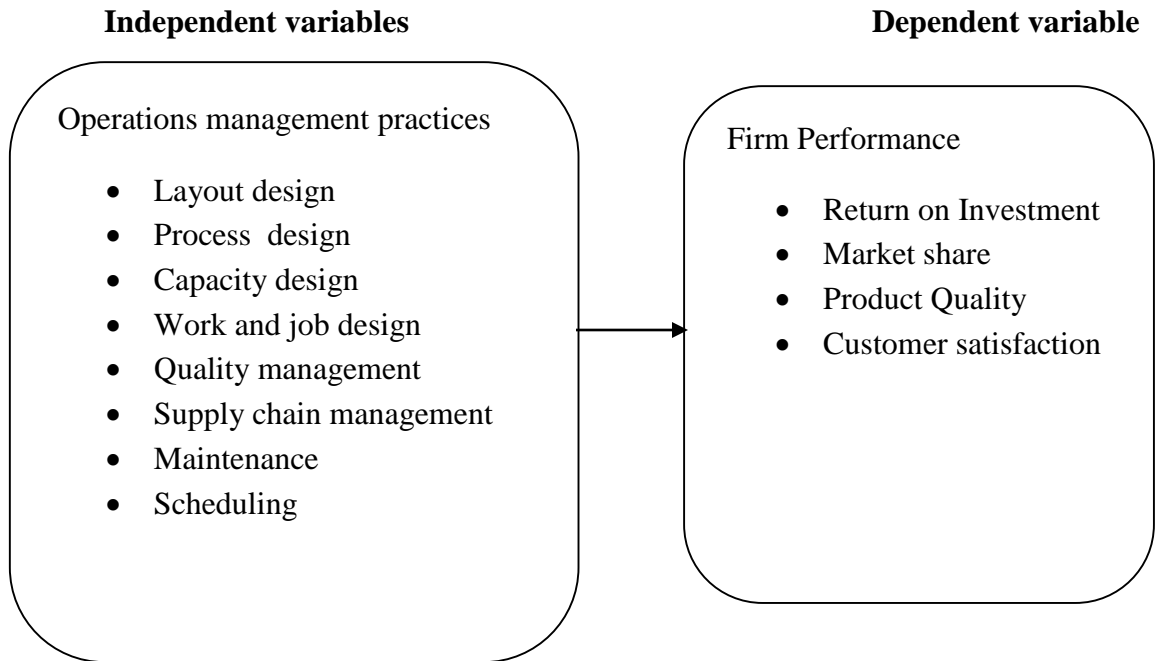


Figure2.1: Conceptual framework

Source: Author

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This chapter presents the research methodology that was used to carry out the census study, what informed the selection of the research design, population of study, data collection instrument and the analysis, interpretation and presentation of data.

3.2 Research Design

This was the framework for carrying out this research. This study adopted a descriptive research design to formulate a problem for more clear investigation as well as discovery of ideas and thoughts. The use of descriptive design is justified due to its flexibility as well as adaptability to change. Also, this research design is effective in laying the basis that facilitates future studies. Similarly, descriptive study potentially save time as well as other resources by establishing at the earlier stages the kind of research that is important to pursue (Surbhi, 2016).

3.3 Population of the Study

The population of the study comprises 7 motor vehicle assembly firms in Nairobi, Kenya. The motor vehicle assembly segment includes the following companies: General Motors East Africa, Kenya Vehicle of Manufacturers, Mobius Motors, Toyota Kenya, Associated Vehicle Assemblers Ltd (AVA), Peugeot, Uryisia Limited and TVS Motors Kenya (PWC, 2017). Data was gathered from all the 7 motor vehicle assembly as they are the only motor vehicle assembly firms within Nairobi area.

3.4 Data Collection

The research study used primary source of data. Primary data collected through self-administered questionnaires and it was collected through a drop and pick later method to the firms. The questionnaire consists of both open and closed ended questions designed to elicit specific responses for qualitative analysis. The open ended questions are meant to avoid limiting the respondents in answering the questions. A questionnaire is chosen since it acts as a useful tool for collecting data from respondents because of the need to provide a means of expressing their views more openly and clearly. The respondents in the firms were the Operations Manager, Head Supply Chain Management, Human Resource and Administration Manager and two non-supervisors within the departments.

The questionnaire is made up of four sections; Section A consist of the demographic information of the respondent and general information about the company, Section B deals with the operations management practices adopted by motor vehicle assembly firms in Nairobi, Kenya, Section C deals with challenges faced by motor vehicle assembly firms in Nairobi, Kenya from adopting operations management practices and Section D deals with firm performance of motor vehicle assembly firms in Nairobi, Kenya with relation to operations management practices.

3.5 Data Analysis

The data collected was analyzed using descriptive statistics and regression analysis. The dependent variable in the study is firm performance. The collected data was coded and tabulated to enable the responses to be statistically analyzed. Descriptive statistics such as mean scores, standard deviation, frequency distributions and percentages were used in the study.

The analysis was facilitated through use of Statistical Package of Social Sciences (SPSS).

A multiple regression model is developed to describe the effect between operational management practices of the motor vehicle assembly firms and the firm's performance.

The regression equation assumed the following form:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \beta_8 X_8 + \alpha$$

The following translates the equation:

Where Y = Firm performance

β_i = Regression coefficient

X_1 = Layout design

X_2 = Process design

X_3 = Capacity design

X_4 = Work and job design

X_5 = Quality management

X_6 = Supply chain management

X_7 = Maintenance

X_8 = Scheduling

CHAPTER FOUR: DATA ANALYSIS, RESULTS AND DISCUSSION

4.1 Introduction

This chapter presented the data analysis, interpretation and presentation of the study which was to explore the effect of operations management practices on firm performance of major motor vehicle assembly companies in Nairobi. The qualitative data was analyzed by use of content analysis in answering the various questions regarding the study objective.

4.2 Demographic Information

Different categories of background information were examined from the individual respondents from the major motor vehicle assembly companies in Nairobi. The categories broadly embroiled the respondents' profiles. Doing this enabled the researcher to comprehend the respondents setting and their capability to provide useful data. The results were presented according to the demographics and the research questions.

The general information sought from the respondents included the length of time they had worked for their respective motor vehicle assembly companies, as well as their current positions in their respective vehicle assembly companies. The study targeted a total of 35 respondents, 5 from each of the 7 motor vehicle assembly companies. The respondents embroiled managers, supervisors and non-supervisors from the motor vehicle assembly companies in Nairobi. Questionnaires were administered to the respondents and the data from the completed questionnaires were analyzed and presented on tables.

4.2.1 Response Rate

The researcher distributed a total of 35 questionnaires to the respondents, with each motor vehicle assembly company having 5 respondents. All the 35 questionnaires were completely filled by the respondents and the completed questionnaires retrieved for analysis. This represented 100% response rate as demonstrated in table 4.1 below.

Table 4.1: Response Rate

Respondents	Frequency	Percentage%
Target Population	35	100
Response Rate	35	100

This is a dependable response rate for data analysis as Mugenda and Mugenda (2003) notes that for generalization a response rate of 50% is sufficient for analysis and reporting, 60% is good and a response rate of 70% and above is excellent. The response rate is hence adequate for data analysis.

4.2.2 Position of the Respondent

To establish the position held by the respondent in the motor vehicle assembly company, the researcher categorized the respondents' positions into three namely: manager, supervisor and non-supervisor. The respondents were required to state their current positions in their respective motor vehicle assembly companies and the results are shown in table 4.2.

Table 4.2: Position of the respondent

	Frequency	Percentage
Manager	13	52.1
Supervisor	10	28.6
Non – Supervisory	12	34.3

The results from the table suggest that majority of the respondents constituting 52.1% were in management positions in their respective motor vehicle assembly companies. 28.6% of the respondents consisted of supervisors while 34.3% of the respondents comprised non-supervisors. The largest proportion of the respondents in the management position is significant for the study since it is the management of the motor vehicle assembly companies who make informed decisions regarding adoption of operations management practices in enhancing their operations as well as improving their firm performance.

4.2.3 Duration of Working in the Current Position

The researcher sought to establish the duration of working of the individual respondents in their respective motor vehicle assembly companies. To do this the study divided the duration of working at motor vehicle assembly company into 4 sub categories, namely below 5 years, 5-10 years, 11-15 years, and over 15 years. The results are presented in table 4.3.

Table 4.3: The duration of working in the current position

	Frequency	Percent
Below 5 years	6	28.6
5-10 Years	6	28.6
11-15 Years	6	28.6
Over 15 years	3	14.3
Total	21	100.0

The results reveal that largest proportion of respondents had been working for the motor vehicle assembly company for more than 5 years accounting for 71.5% with 28.6% having worked for between 5-10 years, and another 28.6% having worked for between 11-15 years and 14.3% of the respondents having worked for more than 15 years. Only the remaining 28.6% had worked for the motor vehicle assembly company for less than 5 years. The largest percentage of respondents had been working in the motor vehicle assembly company for more than 5 years is significant for the study since they have vast knowledge of the operations management practices adopted by their respective firms and their impact on their firm's performance.

4.3 Operations Management Practices adopted by motor vehicle assembly firms in Nairobi, Kenya

With the aim of establishing the extent of the adoption of operations management practices by motor vehicle assembly companies, we divided this category in various sections that were rated with a Likert scale. The Likert scale was divided into five points, where 1= Not at all 2= little extent 3= Moderate extent 4= Great extent 5= Very great extent. The table below shows the findings.

4.3.1 Quality Management

In order to ascertain the extent of adoption of quality management practices to motor vehicle assembly companies, the study divided this category in various sections that were rated with a Likert scale. The Likert scale was divided into five points, where 1= Not at all 2= little extent 3= Moderate extent 4= Great extent 5= Very great extent. The findings are indicated in table 4.4 below.

Table 4.4: Quality Management

	N	Mean	Std. Deviation
Company welcomes and acts on customers' complaints	35	4.2857	0.71714
Company has a quality management system in place	35	4.1429	0.65465
There is continuous improvement on handling of customers	35	4.0952	0.83095
Company has a mechanism to enhance customer satisfaction	35	4.0000	0.70711
Staff are continuously trained and educated on quality programs	35	3.7619	0.76842
Company relies on feedback from Communications Commission Authority on quality of its products	35	3.6190	1.02353
Average Mean Score		3.8419	

The respondents were asked to indicate the extent of the adoption of quality management as an operations management practice to the organization. The findings indicate that they agreed to a great extent that it has led to the welcoming and acting on customers' complaints in the company as pointed out by the mean of 4.2857 and standard deviation of 0.71714. The respondents similarly agreed to a great extent that the company has a quality management system in place as indicated by a mean of 4.1429 and standard deviation of 0.65465. The respondents also agreed to a great extent that there is continuous

improvement on handling of customers as pointed out by a mean of 4.09524 and standard deviation of 0.83095.

The respondents stated to a great extent that company has a mechanism to enhance customer satisfaction as pointed out by a mean of 4.0000 and standard deviation of 0.70711. They also stated to a moderate extent that staff are continuously trained and educated on quality programs as pointed out by a mean of 3.7619 and standard deviation of 0.76842. Lastly the respondents stated to a moderate extent that the company relies on feedback from Communications Commission Authority on quality of its products as pointed out by a mean of 3.6190 and standard deviation of 1.02353.

4.3.2 Supply Chain Management

The study sought to find out the extent of the adoption of supply chain management to motor vehicle assembly companies. We divided this category in various sections that were rated with a Likert scale. The Likert scale was divided into five points, where 1= Not at all 2= little extent 3= Moderate extent 4= Great extent 5= Very great extent. Table 4.5 below shows the findings.

Table 4.5: Supply Chain Management

	N	Mean	Std. Deviation
The company can locate and track movement of items within its chain	35	3.8571	0.79282
Company gathers feedback from distributors and customers on how to improve operations systems	35	3.5714	0.92582
The company provides technical assistance to suppliers, distributors and customers	35	3.5238	0.98077
Suppliers operate as separate entities with their own goals	35	3.0000	0.83666
Average Mean Score		3.4881	

The respondents were asked to indicate the extent of the adoption of supply chain management as an operation management practice to the organization. The findings indicate that they agreed to a great extent that it has led to locating and tracking movement of items within the company's chain as pointed out by the mean 3.8571 and standard deviation of 0.79282. The respondents similarly agreed to a great extent that the company gathers feedback from distributors and customers on how to improve operations systems as pointed out by a mean of 3.5714 and standard deviation of 0.92582.

Respondents also agreed to a great extent that the company provides technical assistance to suppliers, distributors and customers as pointed out by a mean of 3.5238 and standard deviation of 0.98077. To a moderate extent, the respondents stated that suppliers operate as separate entities with their own goals as indicated by a mean of 3.0000 and standard deviation of 0.83666.

4.3.3 Maintenance

In order to ascertain the extent of the adoption of maintenance as an operations management practice to motor vehicle assembly companies, the study divided this category in various sections that were rated with a Likert scale. The Likert scale was divided into five points, where 1= Not at all 2= little extent 3= Moderate extent 4= Great extent 5= Very great extent. Table 4.6 below indicates the results.

Table 4.6: Maintenance

	N	Mean	Std. Deviation
Company undertakes regular inspection of its products and facilities	35	4.2381	0.62488
Maintenance services are done regularly to maintain quality standards	35	4.1429	0.85356
Maintenance services are done when there is less work or when equipment breaks down	35	3.9524	0.92066
Company maintains constant production and supply links	35	3.5714	0.87014
Employees work overtime more often to clear backlogs	35	2.8571	1.10841
Increasing or decreasing working hours depends on demand	35	2.5238	1.07792
Company hires more workers when demand increases	35	2.4286	0.97834
Average Mean Score		3.7524	

The respondents were asked to indicate the extent of adoption of maintenance as an operation management practice to the organization. The findings indicate that they agreed to a great extent that it has led to the company undertaking regular inspection of its products and facilities as pointed out by the mean of 4.2381 and standard deviation of 0.62488. The respondents similarly agreed to a great extent that maintenance services are done regularly to maintain quality standards as indicated by a mean of 4.1429 and standard deviation of 0.85356. The respondents also agreed to a moderate extent that maintenance services are done when there is less work or when equipment breaks down as pointed out by a mean of 3.9524 and standard deviation of 0.92066.

The respondents agreed to a moderate extent that the company maintains constant production and supply links as pointed out by a mean of 3.5714 and standard deviation of 0.87014. They also stated to a little extent that employees work overtime more often to

clear backlogs as pointed out by a mean of 2.8571 and standard deviation of 1.10841. The respondents indicated to a little extent that the increasing or decreasing working hours depends on demands as pointed out by a mean of 2.5238 and standard deviation of 1.07792. Lastly, to a little extent also, the respondents stated that the company hires more workers when demand increases as pointed out by a mean of 2.4286 and standard deviation of 0.97834.

4.3.4 Work and Job Design

The study sought to examine the extent of adoption of work and job design as an operations management practice to motor vehicle assembly companies, we divided this category in various sections that were rated with a Likert scale. The Likert scale was divided into five points, where 1= Not at all 2= little extent 3= Moderate extent 4= Great extent 5= Very great extent. The findings are illustrated in table 4.7 below.

Table 4.7: Work and Job Design

	N	Mean	Std. Deviation
Employees have job descriptions	35	4.5714	0.67612
There is a strong spirit of cooperation in the organization	35	4.4286	0.74642
Organization takes care of employee welfare	35	4.4286	0.81064
Employees fully understand the goals, policies, and objectives of this organization	35	4.2857	0.78376
Supervisors provide feedback to employees on periodic unit performance	35	4.0476	0.80475
The organization has a reporting and communication structure	35	4.0000	0.63246
There is a system for collecting employees' opinions	35	3.8095	0.51177
The organization provides continuous training of job and procedure	35	3.7619	0.99523
Average Mean Score		4.1667	

The respondents were asked to indicate the extent of adoption of work and job design as an operations management practice to the organization. The findings indicate that they agreed to a great extent that it has led to the employees having job descriptions as pointed out by the mean of 4.5714 and standard deviation of 0.67612. The respondents similarly agreed to a great extent that there is a strong spirit of cooperation in the organization as indicated by a mean of 4.4286 and standard deviation of 0.74642. The respondents also agreed to a great extent that the organization takes care of employee welfare as shown by a mean of 4.4286 and standard deviation of 0.81064.

The respondents agreed to a moderate extent that the employees fully understand the goals, policies, and objectives of this organization as indicated by a mean of 4.2857 and standard deviation of 0.78376. They also stated to a great extent that supervisors provide feedback to employees on periodic unit performance as pointed out by a mean of 4.0476 and standard deviation of 0.80475. The respondents indicated to a moderate extent that the organization has a reporting and communication structure as pointed out by a mean of 4.0000 and standard deviation of 0.63246. Also to a moderate extent, the respondents stated that there is a system for collecting employees' opinions as pointed out by a mean of 3.8095 and standard deviation of 0.51177. To a moderate extent, the respondents stated the organization provides continuous training of job and procedure as pointed out by a mean of 3.7619 and standard deviation of 0.99523.

4.3.5 Layout Design

The study sought to explore the extent of adoption of layout design as an operations management practice to motor vehicle assembly companies. The study divided this category in various sections that were rated with a Likert scale. The Likert scale was

divided into five points, where 1= Not at all 2= little extent 3= Moderate extent 4= Great extent 5= Very great extent. The findings are indicated in table 4.8 below.

Table 4.8: Layout Design

	N	Mean	Std. Deviation
It is easy for employees to communicate with one another	35	4.2381	0.88909
Designed for ease of future expansion and improvement	35	4.0476	0.80475
Divisions are grouped depending on products they deal with	35	4.0476	0.92066
Properly utilize the space available	35	3.8571	0.79282
Departments are divided based on similarity of duties	35	3.7619	0.83095
Divisions operate according to their geographical locations	35	2.6667	1.11056
Average Mean Score		3.7698	

The researcher sought to establish the extent of adoption of layout design to the organization. The respondents agreed to a great extent that it is easy for employees to communicate with one another as pointed out by the mean of 4.2381 and standard deviation of 0.88909. The respondents similarly agreed to a great extent that it is designed for ease of future expansion and improvement as indicated by a mean of 4. 4.0476 and standard deviation of 0.80475. The respondents also agreed to a great extent that divisions are grouped depending on products they deal with as shown by a mean of 4.0476 and standard deviation of 0.92066. The respondents agreed to a moderate extent that there is proper utilization of the space available as indicated by a mean of 3.8571 and standard deviation of 0.79282. They also stated to a moderate extent that departments are divided based on similarity of duties as pointed out by a mean of 3.7619 and standard deviation of 0.83095.

Lastly to a little extent they stated that the divisions operate according to their geographical locations as pointed out by a mean of 2.6667 and standard deviation of 1.11056.

4.3.6 Process Design

In order to ascertain the extent of adoption of process design to motor vehicle assembly companies, the study divided this category in various sections that were rated with a Likert scale. The Likert scale was divided into five points, where 1= Not at all 2= little extent 3= Moderate extent 4= Great extent 5= Very great extent. The results are shown in table 4.9 below.

Table 4.9: Process Design

	N	Mean	Std. Deviation
Company does invest in long term systems for operations	35	4.0476	0.66904
The company determines the work flow, equipment needs and implementation requirements for a particular process	35	3.8571	0.79282
Company embraces innovation in developing new process systems	35	3.8095	0.60159
Company is able to diversify in production technologies	35	3.7619	0.88909
Average Mean Score		3.8690	

The researcher sought to establish the extent of adoption of process design as an operations management practices to the organization. The respondents agreed to a great extent that the company does invest in long term systems for operations as shown by the mean of 4.0476 and standard deviation of 0.66904. The respondents similarly agreed to a moderate extent that the company determines the work flow, equipment needs and implementation requirements for a particular process as indicated by a mean of 3.8571 and standard deviation of 0.79282.

To a moderate extent the respondents similarly agreed that the company embraces innovation in developing new process systems as shown by a mean of 3.8095 and standard deviation of 0.60159. Lastly, they stated to a moderate extent that Company is able to diversify in production technologies as indicated by a mean of 3.7619 and standard deviation of 0.88909.

4.3.7 Scheduling

In order to ascertain the extent of adoption of scheduling to motor vehicle assembly companies, the study divided this category in various sections that were rated with a Likert scale. The Likert scale was divided into five points, where 1= Not at all 2= little extent 3= Moderate extent 4= Great extent 5= Very great extent. The results are indicated in table 4.10 below.

Table 4.10: Scheduling

	N	Mean	Std. Deviation
The company arranges, controls and optimizes workloads in production	35	3.7619	0.70034
Company plans human resources, material purchase and production processes to maximize on economies of scale	35	3.6667	0.65828
The company allocates plant and machinery resources in various production processes	35	3.2857	0.64365
Average Mean Score		3.5714	

The researcher sought to establish the extent of adoption of scheduling to the organization. The respondents agreed to a moderate extent that it has led to the company arranging, controlling and optimizing workloads in production as pointed out by the mean of 3.7619 and standard deviation of 0.70034. The respondents similarly agreed to a moderate extent

that the company plans human resources, material purchase and production processes to maximize on economies of scale as indicated by a mean of 3.6667 and standard deviation of 0.65828. Lastly the respondents also agreed to a moderate extent that the company allocates plant and machinery resources in various production processes as shown by a mean of 3.2857 and standard deviation of 0.64365.

4.4 Operations Management Practices and Firm Performance

The researcher sought to verify the relationship between operations management practices and firm performance of motor vehicle assembly companies. The study divided this category in various sections that were rated with a Likert scale. The Likert scale was divided into five points, where 1= Not at all 2= little extent 3= Moderate extent 4= Great extent 5= Very great extent. The results are indicated in table 4.12 below.

4.4.1 Return on Assets

Table 4.11: Return on Assets

	N	Mean	Std. Deviation
Profit margin in the last quarter enabled the firm to expand its operations to cover a larger area compared to other firms	35	3.2857	0.78376
The company has reported relatively high profit in the current quarter against the previous quarter compared to other firms	35	3.2857	0.78376
The company's set sales projections in the next quarter will have competitive advantage over other firms	35	3.2381	0.76842
Sales volume increased in the current quarter compared to the previous quarter	35	3.1905	0.60159
Average Mean Score		3.2500	

The respondents were asked to indicate the relationship of operations management practices to Return on Assets. The findings indicate that they stated to a moderate extent that profit margin in the last quarter enabled the firm to expand its operations to cover a larger area compared to other firms as shown by the mean of 3.2857 and standard deviation of 0.78376. The respondent agreed to a moderate extent that the company has reported relatively high profit in the current quarter against the previous quarter compared to other firms as pointed out by the mean of 3.2857 and standard deviation of 0.78376. They similarly stated to a moderate extent that the company's set sales projections in the succeeding quarter would have competitive advantage over other firms as shown by the mean of 3.2381 and standard deviation of 0.76842. The respondent also agreed to a moderate extent sales volume increased in the current quarter compared to the previous quarter as pointed out by the mean of 3.1905 and standard deviation of 0.60159.

4.4.2 Market share

Table 4.12: Market share

	N	Mean	Std. Deviation
The firm has been able to penetrate the market through increased market segments to in the present quarter compared to competitors	35	4.0476	0.97346
The firm's market share has steadily grown in terms of revenue in the current quarter in relation to the last quarter	35	3.4762	0.74960
Average Mean Score		3.7619	

The respondents were asked to indicate the relationship of operations management practices to market share. The findings indicate that they stated to a great extent that the

firm has been able to penetrate the market through increased market segments to in the present quarter compared to competitors as shown by the mean of 4.0476 and standard deviation of 0.97346. The respondents agreed to a moderate extent that firm’s market share has steadily grown in terms of revenue in the current quarter in relation to the last quarter as pointed out by the mean of 3.4762 and standard deviation of 0.74960.

4.4.3 Product Quality

Table 4.13: Product Quality

	N	Mean	Std. Deviation
Product is durable and can guarantee customers value for their money	35	4.5238	0.74960
The product is stable and reliable from any acts of crashing, hanging or stalling while in operation	35	4.0476	0.86465
Product performs according to the established standards and metrics as stipulated by regulatory agencies	35	3.8095	0.81358
New features introduced in the product did not break any of the existing functionality	35	3.5714	0.92582
Average Mean Score		3.9881	

The respondents were asked to indicate the relationship of operations management practices to market share. The findings indicate that they stated to a great extent that the firm has been able to penetrate the market through increased market segments to in the present quarter compared to competitors as shown by the mean of 4.0476 and standard deviation of 0.97346. The respondents agreed to a moderate extent that firm’s market share has steadily grown in terms of revenue in the current quarter in relation to the last quarter as pointed out by the mean of 3.4762 and standard deviation of 0.74960.

4.4.4 Customer satisfaction

Table 4.14: Customer satisfaction

	N	Mean	Std. Deviation
The firm has instituted a mechanism to understand customer expectations to gain competitive advantage over other firms	35	4.5714	0.59761
Customer loyalty to the firm products is maintained and reviewed on a regular basis to ensure attribute satisfaction	35	4.3333	0.57735
The firm has established an after sale service for its customers as a way of reward as compared to its competitors in the market	35	4.1429	0.57321
The firm undertakes customer surveys and feedback information is collated to aid in determining customer needs	35	4.0000	0.63246
Average Mean Score		4.2619	

The respondents were asked to indicate the relationship of operations management practices to customer satisfaction. The findings indicate that they stated to a great extent that the firm has instituted a mechanism to understand customer expectations to gain competitive advantage over other firms as shown by the mean of 4.5714 and standard deviation of 0.59761. The respondents agreed to a moderate extent that the firm undertakes customer surveys and feedback information is collated to aid in determining customer needs as pointed out by the mean of 4.0000 and standard deviation of 0.63246.

To a great extent the respondents stated that customer loyalty to the firm products is maintained and reviewed on a regular basis to ensure attribute satisfaction as pointed out by the mean of 4.3333 and standard deviation of 0.57735 to a great the they sated that the

firm has established an after sale service for its customers as a way of reward as compared to its competitors in the market as shown by the mean of 4.1429 and a deviation of 0.57321.

4.5 Challenges Faced in the Adoption of Operations Management Practices

The researcher sought to ascertain the challenges faced in the adoption of operations management practices by motor vehicle assembly companies. The study divided this category in various sections that were rated with a Likert scale. The Likert scale was divided into five points, where 1= Not at all 2= little extent 3= Moderate extent 4= Great extent 5= Very great extent. The results are indicated in table 4.11 below.

Table 4.15: Challenges Faced in the Adoption of Operations Management Practices

	N	Mean	Std. Deviation
Workforce and Social Trends	35	2.9524	0.74001
Difficulty in recruiting the right talent	35	2.8571	1.23635
Having an unwavering commitment to implementation	35	2.5714	0.74642
Constant innovations to keep company operations ahead in the market	35	2.4762	0.87287
Financial Management and Internal Control Systems	35	2.1905	0.51177
Regulatory compliance with existing governance issues	35	2.1905	0.74960
Capacity building of employees to sustain continuous improvement	35	2.1429	0.65465
Unresolved conflicts between departments	35	1.5238	0.87287
Average Mean Score		2.3631	

The respondents were asked the organization about the challenges faced in the adoption of operations management practices motor vehicle assembly companies. The respondents

agreed to a little extent that there is a challenge of workforce and social trends as pointed out by the mean of 2.9524 and standard deviation of 0.74001. The respondents similarly agreed to a little extent that there is difficulty in recruiting the right talent as shown by the mean of 2.8571 and standard deviation of 1.23635. They also stated to a little extent that there is an unwavering commitment to implementation as indicated by the mean of 2.5714 and standard deviation of 0.74642. The respondents similarly stated to a little extent that there is a challenge of Constant innovations to keep company operations ahead in the market as indicated by the mean of 2.4762 and standard deviation of 0.87287. They similarly stated to a little extent that there is a challenge of financial management and internal control systems as shown by the mean of 2.1905 and standard deviation of 0.51177. They also stated to a little extent that there is a challenge of regulatory compliance with existing governance issues as pointed out by the mean of 2.1905 and standard deviation of 0.74960. The respondents stated to a little extent that there is a challenge of capacity building of employees to sustain continuous improvement as indicated by the mean of 2.1429 and standard deviation of 0.65465. Lastly, the respondents agreed to a smaller extent that there are unresolved conflicts between departments as pointed out by the mean of 1.5238 and standard deviation of 0.87287.

4.6 Model Summary

Table 4.16: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
	.859 ^a	.739	.564	.28447

a. Predictors: (Constant), Scheduling, Maintenance, Process Design, Quality management, Work and Job Design, Capacity Design, Layout Designs and Supply Chain Management

Table 4.16 shows R square of 0.739 implying that 73.9% of the total variation in firm performance is attributed to the variations in the changes in explanatory variables (the extent of work and job design, capacity design, quality management, supply chain management, maintenance, scheduling). Therefore 26.1% of the changes is due to measurement errors or other variables that were excluded from the model and are captured in the error term. In order to investigate the relationship between firm performance, the extent of work and job design, quality management, supply chain management, maintenance, scheduling, a multiple linear regression model was fit to the data. It adopted the form:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \beta_8 X_8 + \epsilon$$

Where;

Y= the dependent variable (Firm performance) β_0 - Is a constant; the concept explaining the level of firm performance given and it's Y value when all the predictor values ($X_1, X_2, X_3, X_4, X_5, X_6, X_7, X_8$), are zero, $\beta_1, \beta_2, \beta_3, \beta_4, \beta_5, \beta_6, \beta_7, \beta_8$ – Are constants regression coefficients. Y= Firm performance, X_1 = Layout design, X_2 = Process design, X_3 = Capacity design, X_4 = Work and job design, X_5 = Quality management, X_6 = Supply chain management, X_7 = Maintenance, X_8 = Scheduling

ϵ = Error term

4.7 Analysis of Variance

Table 4.17: Analysis of Variance

Model		Sum Squares	df	Mean Square	F	Sig.
1	Regression	2.744	8	.343	4.238	.013 ^b
	Residual	.971	12	.081		
	Total	3.715	20			

The research utilized One-way ANOVA to establish the significance of the regression model from which a 0.013 probability value was determined. This indicates that the regression link was highly substantial in calculating the manner in which the independent variables (operations management practices) affect firm performance of motor vehicle assembly companies in Nairobi. The F determined at 5% level of significance was 4.238. Since F is higher than the F critical, this shows that the whole model was substantial.

4.8 Regression Coefficients

Table 4.18: Regression Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients		Sig.
	B	Std. Error	Beta	T	
(Constant)	.520	1.277		.408	.691
Quality management	-.032	.198	-.044	-.162	.874
Supply chain management	.431	.304	.668	1.417	.182
Maintenance	.235	.201	.280	1.168	.266
Work design	.284	.188	.340	1.511	.157
Layout design	.236	.310	.275	.762	.461
Capacity design	-.650	.194	-.925	-3.352	.006
Process design	.245	.180	.240	1.358	.199
Scheduling	.070	.148	.089	.472	.645

a. Dependent Variable: Firm performance

The coefficients in Table 4.18 indicate that holding all other factors constant (no influence of the predictor variables) firm performance would be at 0.520. A unit increase in Quality management would result in a unit decrease of firm performance by 0.032. A unit increase in Supply chain management would result in a unit increase in firm performance by 0.431. A unit increase in Maintenance would result in a unit increase in firm performance by 0.235. A unit increase in Work design would result in a unit increase in firm performance by 0.284. A unit increase in Layout design would result in a unit increase in firm performance by 0.236. A unit increase in Capacity design would result in a unit decrease in firm performance by 0.650. A unit increase in Capacity design would result in a unit decrease in firm performance by 0.650. A unit increase in Process design would result in a unit decrease in firm performance by 0.245. Lastly, a unit increase in scheduling would result in a unit decrease in firm performance by 0.070.

Regression coefficients represent the mean change in the response variable for one unit of change in the predictor variable while holding other predictors in the model constant. This statistical control that regression provides is important because it isolates the role of one variable from all of the others in the model. The p-value for each term tests the null hypothesis that the coefficient is equal to zero (no effect). A low p-value (< 0.05) indicates that the null hypothesis can be rejected. In other words, a predictor that has a low p-value is likely to be a meaningful addition to the model because changes in the predictor's value are related to changes in the response variable. Conversely, a larger (insignificant) p-value suggests that changes in the predictor are not associated with changes in the response.

In the table 4.18 above, it is clear that the predictor variables of Quality management, Scheduling, Process design, Work design, Supply chain management and Layout design are statistically insignificant because all their p-values are > 0.05 . However, the p-value for Capacity design (0.006) is less than the common alpha level of 0.05, which indicates that it is statistically significant. Therefore, the regression model was:

Y= the dependent variable (Firm performance) β_0 - Is a constant; the concept explaining the level of firm performance given and it's Y value when all the predictor values are zero, β_1 - Are constants regression coefficients. Y= Firm performance, X_3 = Capacity design,

$$Y = \beta_0 + 0.06 X_3$$

4.9 Discussion

The study objective was to investigate the effects of operations management practices on firm performance of motor vehicle assembly companies in Nairobi. Analysis of data quality confirms that the survey is a fair representation of operations management practices undertaken by motor vehicle assembly companies in Nairobi. The vast majority of respondents had a management position. Descriptive statistics relating to research question finds that motor vehicle assembly companies in Nairobi believe in investing in all aspects of operations management quality management, scheduling, process design, work design, supply chain management and layout design and capacity design.

The results indicate that the regression link was highly substantial in calculating the manner in which the independent variables (operations management practices) affect firm performance of motor vehicle assembly companies in Nairobi.

From the results it was clear that quality management, scheduling, process design, work design, supply chain management and layout design were statistically insignificant whereas Capacity design was found to be statistically significant. These findings are congruent to the findings of Anyona (2016) that sought to determine the influence of operations management practices on performance of telecommunication firms in Kenya. Her study similarly established that there was a significant effect of the operations management practices on the performance of the telecommunication firms in Kenya

The findings of this study similarly corresponds to those findings of the study by Battistoni et al. (2013) that sought to highlight the importance of operations management for Italian SMEs operating in the manufacturing sector. Their study established that operations management practices are relevant indicators of these firms' performance. Also, their model pointed out a positive association to be carefully taken into account by management, in order to implement best practices that can affect revenue and internal efficiency. The findings of this study are also in line with those of Tan, Kannan, and Narasimhan (2007) on the impact of operations capability on firm performance who's results provided support for their and demonstrated a positive relationship between operations capability and firm performance.

Going by these consistent results, it is important therefore for operations managers to work in conjunction with, many aspects of the company; their skill-set must reflect both a breadth and depth of knowledge from a myriad of areas and employ best practices to increase productivity, decrease waste, and generate profit.

Battistoni et al. (2013) state that those working in operations management must therefore engage in all types of critical analysis with a particular emphasis on effective decision-making to meet the needs of stakeholders and the goals of the company. Bringing innovation and cutting-edge best practices to the areas of quality management, inventory control, delivery, supply chain, and information management, is what makes the difference between a marginally successful company and a company that dominates their share of the market place.

CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

In the previous chapter, we extensively analyzed the data collected from respondents in the motor vehicle assembly companies which helped in drawing conclusion and recommendations for improvement. Therefore, it's important for researchers to draw sound recommendations and where possible come up with effective operations management practices with growth of technology as current practices are being outdated easily. This chapter gives a summary of the findings of the study, conclusion and recommendations. It also outlines the limitations of the study and suggestions for further research.

The findings are summarized in line with the objective of the research which was to determine how scheduling, maintenance, process design, quality management, work and job design, capacity design, layout design and supply chain management influence firm performance. The summary is given based on the aspects covered in the questionnaire which were; position of the respondent, the duration of working in the current position, benefits of operations management practices, challenges faced in the adoption of operations management practices and the influence of operations management practices and firm performance.

5.2 Summary of the Findings

The objective of the study was to determine the impact of operations management practices on firm performance at motor vehicle assembly companies in Nairobi. Data was collected using questionnaires administered to total of 35 questionnaires to the respondents, with

each motor vehicle assembly company having 5 respondents. All the 35 questionnaires were completely filled by the respondents and the completed questionnaires retrieved and analyzed. This represented a 100% response rate. This was a dependable response rate for data analysis.

The results indicated that the regression link was highly substantial in calculating the manner in which the independent variables (operations management practices) affect firm performance of motor vehicle assembly companies in Nairobi. From the results it was clear that quality management, scheduling, process design, work design, supply chain management and layout design were statistically insignificant whereas Capacity design was found to be statistically significant.

5.3 Conclusions

The study concludes that the three major groups of activities performed by operations management, deriving from its planning or designing, organizing, and supervising functions all involve considering assets, costs, and human resources, and are preceded by a thorough analysis of processes. Before planning processes or designing products, operations management should be busy analyzing the market to test the demands. If it delivers promising results, e.g. a niche to target or a new product or service to develop, the motor vehicle assembly firms can start planning.

Mostly, planning involves designing a new product, from the initial concept to the actual launch, with several testing phases involved. During planning, motor vehicle assembly companies will have to consider both technical and business requirements. Sometimes the processes need to be updated: designing a new supply chain or other logistics processes. If

your product is a service, process design aims for a variety of requirements and customer contact levels. Again in other cases, it is about a new facility: the company decides to expand its operations, and you will have to decide on the location of the facility, its capacity, and its layout. Plans should always support the business objectives as they are in focus when considering the costs and finding the best matching quality and capacity, or calculating inventory and human labor needs.

Therefore, it is important to set proper measures in the planning phase, to know if the actual performance meets them, or there is need for adjustments. Capacity is one of these measures, as is product quality, or delivery times. The initial figures are usually estimates based on the market analysis conducted beforehand. Among the things operation managers should be competent at is critical path analysis. After a facility for production, the product design is ready, and so is the way it will be produced: with what material and human resources, at what costs, with what workflow. This is a solid starting base for motor vehicle assembly firms maximizing the efficiency of the operations. Still, there will be need of constant and competent management to correct the accidental mistakes in planning, to adjust production to changing costs or regulations, and keep them efficient on many levels.

The operations manager selects and schedules the processes for an optimal result and does the same with materials for an ideal quality and capacity. Organizing the maintenance of the equipment is also part of the quality management activities. Furthermore, the inventory and the whole supply chain has to be managed in order to produce more efficiently. As in all management functions, the management of human resources of the motor vehicle assembly firms is an essential activity. In operations management, the planning of actual employment levels can have a great impact on whether an organization

can operate effectively. There is always room to improve when it comes to the processes used, the quality and capacity achieved, or as far as the level of inventory and human resources are concerned. A great deal of operations management tasks, therefore, comes from these needs, and this is where long-term planning steps in. However, it ought to be remembered that, changes made according to these plans are only as good as the improvement they bring in business terms.

A better way to forecast demand gets motor vehicle assembly firms closer to an improvement of processes, as savings on costs and delivery times occur. The quality of a product will be higher if it has Total Quality Control established and assesses the operational risks correctly. Inventory control accounts for a better use of supplies. With Just-In-Time manufacturing, the capacity issues can be solved. Collaboration is a common go-to strategy that you can use to improve the effectiveness of your human resources. As a general advice, the firm can always consider adding some technology in the mix. The best way to do that is to develop a technology plan, identify where the company is now, in which areas it would need a boost, which relevant technologies are available, and which ones are feasible to implement.

5.4 Limitations of the Study

The study's limitations included limited time set aside for the research and the limited scope of study. It would have been interesting to research on operations management practices adopted by other industry players and their impact on performance. Securing questionnaire responses was a challenge due to the senior managers' busy schedules.

The findings of the research covered only motor vehicle assembly companies in Nairobi. Kenya has other motor vehicle assembly companies in Mombasa for instance. It is not possible to tell from this study whether the same findings would apply to all these other motor vehicle assembly companies. Further, the research has not dealt with motor vehicle assembly companies outside Kenya, for instance in the East African Community to ascertain whether the findings could still hold.

To counter manager's busy schedules and the limited stipulated time to carry out the research, appointments had to be sought and scheduled, sometimes outside the official working hours. The respondents approached were reluctant in giving information fearing that the information sought would be used to intimidate them or print a negative image of the institutions. The researcher handled the problem by carrying an introduction letter from the university and assured them that the information they would offer would be treated confidentially and it was to be used purely for academic purposes.

A number of organizations have policies within their departments to maintain high level of confidentiality and privacy. The staff therefore may be reluctant and unwilling to give all the required information. This limitation will be addressed by providing an authorization letter from the University of Nairobi assuring them that the material needed will be purely for academic purpose.

Some respondents could be uncooperative and some of them could provide irrelevant information and even opt to leave some of the research questions unanswered thinking that the study will be of no help to them. To overcome this challenge, the researcher will engage

the respondents and explain to them the importance of the research, hence creating a good rapport with which the respondents could give the required information.

5.5 Implications of the Study

With increasing automation will come sweeping organizational change, operations are going to reduce hierarchy and make management easier, so, while many are concerned about the loss of low-level jobs, there is likely to be a sweeping change at every level, including upper management. Previous positions that needed highly skilled workers will no longer exist because artificial intelligence will provide better results without human error. In the future, the most valuable management skills will be the ability to combine data analysis with emotional intelligence. This is something that no algorithm can replace and that will be more crucial than ever.

The future features the coming wave of the Internet of Things, including a rapidly growing number of connected devices at home and work. It could include homes with several computer devices and entire motor vehicle assembly factories with virtually no people. We are in the middle of the beginning of the tidal wave of the Internet of Things. Understanding this trend is essential. Companies therefore ought to be pushed in that direction. The machines will possibly take over a lot of things. In addition to driverless cars, you might see a convoy of several driverless trucks on the highway transporting goods. What is holding it back right now is more a legal issue than a technical one. The trend is more and more automation, more and more artificial intelligence. The people who are not able to keep up with that will need to find something else to do.

The key trends that are likely are companies combining data visualization with key performance indicators, artificial intelligence and machine learning increasing productivity, innovation and function merging to create real-time monitoring and management systems, employee retention

getting increasingly difficult to maintain, customer service merging between online and retail, and automation making some current positions obsolete.

The 'Internet of Things', the interconnection of computerized devices via the Internet has the potential to drive efficiency, but it also brings challenges in complexity and cost. To be efficient, motor vehicle assembly firms need a location infrastructure using addressable maps and technologies, like Bluetooth beacons. A big challenge is that companies often store data in separate databases, leaving analysts to pull it into spreadsheets to compare. There is no single dashboard to bring it into.

5.6 Recommendations

Today's biggest challenges in operations are all related to keeping up with the pace of innovation. Millennials are the largest population entering the workforce. They expect that the companies they work for are going to be as tech savvy as they are, yet existing employees resist change and implementing new technologies. So there is a clash between generations. It is therefore important for operations management to balance between the two.

Operations management are likely to become a high-tech position, requiring a highly analytical skill set and product-focused mindset. With motor vehicle assembly firms delivering packages on the same day, customers are coming to expect instantaneous results, and, to maintain competitiveness, operations need to drive toward that type of success. There are opportunities presented by technology to build or service faster, better, and cheaper. It is therefore critical to utilize technology, interpret data, source new materials, and identify talented labor. Labor challenges ought to be confronted so as to build a better workforce. The labor force can be better utilized by improved recruiting techniques that allow drawing in new labor. The existing staff can

also be better trained to advance within the motor vehicle assembly firms. The organization must have an obligation to train its existing team to grow and advance internally.

Data ought to be collected electronically: Having team members write down their processing numbers for data collection can lead to inaccurate data and will not give the results needed to run the operations efficiently. There should be use of report dashboards and dependence on data and analytics. After determining information needed to run the company, it should be measured, and analysis be used to augment the process and continually improve operations. Motor vehicle assembly firms should be customer-focused by designing their processes with the end customer in mind. They must think about what they see as value and what they're willing to pay for, as well as how quickly they expect to get results.

The motor vehicle assembly firms also ought to listen to its internal and external teams. Field-level employees, internal sales, and vendors have invaluable information and know what is going on with the product/services and the competition. There ought to be constant examining of internal processing times and employee performance and measuring success rates. Measuring internal performance allows the organization to exceed customer demand. Network ought to be expanded. Managers from competitive firms change jobs. A friendly relationship should become a key alliance. Vendor partnerships in developing new products/services allow growing of substantially as well as increasing knowledge base while increasing speed to market.

There should be a good communication in place. It ought to be considered that processes, rules, and policies are well-communicated to everyone. There should be a smart marketing plan and be up to date. There should be patterning of marketing plan after anything that is on trend. It ought to

be conducted immediately, using a concrete plan with a timeline until a new trend arrives. Also weekly reports of everything about the company ought to be available.

The organization should keep current on innovation trends, and take the time to listen to suggestions of tech-savvy employees, it ought to only use technology that is simple to use and engaging for employees at every skill level, invest in educating managers and employees on the goals of implementing new systems and make sure it builds in rewards so that everyone is motivated to learn and use new technology.

It is also important to consider the side effects of each decision and how the motor vehicle assembly firms are relaying communication to the team. People tend to like working for (and have higher engagement with) leaders who maintain a level head and aren't too quick to pass judgment. Managers should be proactive and strategic. It's important that leaders aren't reacting all day. The constant reactionary environment can turn great leaders into fire chasers, which tends to devolve their communication. They ought to stay focused on the numbers. If something isn't working like it should, it's better to focus on the measurable data than on the emotion of the disappointment or the result.

Managers should make sure that any project has an internal owner, otherwise it could possibly go off track. They ought to understand the key performance indicators that will drive the business. It just doesn't matter because they can measure, they ought to protect the data. Operations managers have to safeguard the information. They need to consider leveraging infrastructure as a service, with hosting, security, and redundancy built in.

5.7 Suggestions for Further Research

The study suggests further survey on study operations management practices and performance at motor vehicle assembly companies in later years to track the effectiveness of such strategies into the long run. This research should be replicated in other industries in order to establish whether there is consistency on operations management practices and firm performance. The study will supplement the findings of this study by providing information on the strength and weaknesses experienced in other sectors.

Additionally, further studies should be carried out to determine the factors that influence the performance of motor vehicle assembly companies. This is in relation to identifying other external influences over which they have little control and how they impact on motor vehicle assembly companies' performance. Further research to be done on the factors affecting operations management practices and its impact on firm performance by focusing on other sectors other than motor vehicle assembly industry in order to depict reliable information that illustrates real situation in across all sectors.

There is also a limitation of this study which includes a similar study whose objective would be to reaffirm these findings. Further research could also be done to determine other factors that result in firm performance of motor vehicle assembly companies. Which can include the similar variables or more variables be added. This can be used to come up with more solid confirmation or reduction of error term.

REFERENCES

- Anyona, E. (2016). *Operations Management Practices and Performance of Telecommunications Firms in Kenya* (Unpublished Master's Thesis). University of Nairobi, Nairobi, Kenya.
- Battistoni, E., et al. (2013). An analysis of the effect of operations management practices on performance. *International Journal of Engineering Business Management*, 5, 5-43.
- Byegon, Richard K. (2015). *Operations management practices and perceived service quality a case study of Kenya sugar industry*. Unpublished MBA Project, University of Nairobi.
- Cleveland, G., Schroeder, R., & Anderson, J. (1989). A theory of production competence. *Decision Sciences* 20 (4) , 655-668.
- Gupta, J., & Marquez, A. (2005). Contemporary maintenance management: Process, framework and supporting pillars. *The Journal of Management Science, Omega* 3(4) 78-89.
- Heizer, J., & Render, B. (2013). *Operations management*. Upper Saddle River, New Jersey: Prentice Hall.
- Heizer, J., & Render, B. (2006). *Principles of operations management, 6th edition International edition*. Pearson.
- Hubbard, G. (2009). Measuring firm's performance: Beyond the triple bottom line, *Business Strategy and the Environment*, 19, 177–191.
- Kaplan, R. and Norton, D. (2008). *Execution Premium: Linking strategy to operations for competitive advantage*. Harvard Business School Press
- Kaplan, R.S. and Norton, D.P. (1992). *The balanced scorecard-measures that drive performance*. Harvard Business Review.

- Kenya Motor Industry Association (2016). *Kenya Motor Industry Association*. Retrieved from <http://www.kmi.co.ke/kmi-briefs> on July 5, 2017
- Krajewski, L., Ritzman, L., & Malhorta, M. (2013). *Operations Management: Processes and Supply Chains*. 10th ed., Pearson.
- Luchs, M., & Swan, K. S. (2011). Perspective: The Emergence of Product Design as a Field of Marketing Inquiry. *Journal Of Product Innovation Management*, 28(3), 327-345. doi:10.1111/j.1540-5885.2011.00801.x
- Lwiki T. (2013). The impact of inventory management practices on financial performance of sugar manufacturing firms in Kenya. *International Journal of Business, Humanities and Technology*. 3(5), 31-54
- Mbolonzi, W. K. (2016). *Operations Management Practices and Performance of SchneiderElectric Kenya*. University of Nairobi: Unpublished MBA report.
- Mkalama, R.N. (2014). Top management demographics, strategic decision making, and Macro-Environment and Performance of Kenyan State Owned corporations. *University of Nairobi, Ph.D. Thesis*.
- PricewaterhouseCoopers (2017). "*PwC Kenya: Industries: Automotive*". PwC. Retrieved from <http://www.pwc.com/ke/en/industries/automotive.html> on July 5, 2017
- Richard et al. (2009): Measuring Organizational Performance: Towards Methodological Best Practice. *Journal of Management*. 3(5), 61-74
- Russell, R. S., & Taylor, B. (2007). *Operations Management*. New Delhi: 4 th edition. Prentice Hall of India.
- Schmenner, R. W., & Vastag, G. (2006). Revisiting the theory of production competence: Extensions and cross-validations. *Journal of Operations Management* 2(4), 893-909.

- Upadhaya, B., Munir, R., & Blount, Y. (2014). Association between Performance Measurement Systems and Organizational Effectiveness. *International Journal of Operations & Production Management*, 34(7), 2-2
- Quenneville, L. (2014). 3 Types of Survey Research, When to Use them, and How they Can Benefit Your Organization. Retrieved from <http://fluidsurveys.com/university/3-types-survey-research-use-can-benefit-organization/>
- Surbhi, S. (2016). *Difference between Exploratory and Descriptive Research*. Retrieved from <https://keydifferences.com/difference-between-exploratory-and-descriptive-research.html>
- Karuga, E. (2017). *The growth of local car assembly industry in Kenya*. Retrieved from <http://blog.calculator.co.ke/the-growth-of-local-car-assembly-industry-in-kenya/>
- Wafula, W. M. (2016). *Operations management practices and performance of electric utility firms in Kenya*. Dissertation. University of Nairobi.
- Jimoh, R., Oyewobi, L., Isa, R., & Waziri, I. (2018). Total quality management practices and organizational performance: the mediating roles of strategies for continuous improvement. *International Journal of Construction Management*, 1-16.
- Delaney, J. T., & Huselid, M. A. (1996). The impact of human resource management practices on perceptions of organizational performance. *Academy of Management journal*, 39(4), 949-969.
- Paul, A. K., & Anantharaman, R. N. (2003). *Impact of people management practices on organizational performance: Analysis of a causal model*. *International Journal of Human Resource Management*, 14(7), 1246-1266
- Boselie, P., Paauwe, J., & Richardson, R. (2003). Human resource management, institutionalization and organizational performance: a comparison of hospitals, hotels and local government. *The International Journal of Human Resource Management*, 14(8), 1407-1429.

- Spitzer, D. R. (2007). *Transforming performance measurement: Rethinking the way we measure and drive organizational success*. American Management Association. New York: NY.
- Jenatabadi, H. S. (2015). *An overview of organizational performance index: Definitions and measurements*. Retrieved from <http://dx.doi.org/10.2139/ssrn.2599439>
- Louise, J. (2012). What is organizational performance? Retrieved from <http://www.growth.pitcher.com.au/resources/articles/what-is-organisational-performance>
- Tan, K. C., Kannan, V. R., & Narasimhan, R. (2007). The impact of operations capability on firm performance. *International Journal of Production Research*, 45(21), 5135-5156.
-

- Spitzer, D. R. (2007). *Transforming performance measurement: Rethinking the way we measure and drive organizational success*. American Management Association. New York: NY.
- Jenatabadi, H. S. (2015). *An overview of organizational performance index: Definitions and measurements*. Retrieved from <http://dx.doi.org/10.2139/ssrn.2599439>
- Louise, J. (2012). What is organizational performance? Retrieved from <http://www.growth.pitcher.com.au/resources/articles/what-is-organisational-performance>
- Tan, K. C., Kannan, V. R., & Narasimhan, R. (2007). The impact of operations capability on firm performance. *International Journal of Production Research*, 45(21), 5135-5156.
-

APPENDICES

APPENDIX I: QUESTIONNAIRE

The questionnaire is divided into two sections, the introductory part and the part with questions on adoption of Operations Management Practices and Firm Performance by Motor Vehicle Assembly Companies in Nairobi, Kenya. Kindly answer by ticking (√) against the correct response that represents appropriately your situation

SECTION A: GENERAL INFORMATION

1. Position of respondent: Manager { } Supervisor { } Non – Supervisory { }

2. How long have you worked in your current position?

Below 5 Years [] 5 - 10 Years []

11- 15 Years [] Over 15 Years []

SECTION B: OPERATIONS MANAGEMENT PRACTICES ADOPTED BY MOTOR VEHICLE ASSEMBLY FIRMS IN NAIROBI, KENYA

1. Rate the level of agreement to the following statements. The following key is a guide to provide your response by ticking against your level of agreement to the statement as given. Where: 1 Not At all, 2 Little extent, 3 Moderate extent, 4 Great extent, 5 Very great extent.

Quality Management	5	4	3	4	1
Company has a quality management system in place					
Staff are continuously trained and educated on quality programs					
Company has a mechanism to enhance customer satisfaction					
Company welcomes and acts on customers' complaints					
There is continuous improvement on handling of customers					
Company relies on feedback from Communications Commission Authority on quality of its products					

Supply Chain Management					
Suppliers operate as separate entities with their own goals					
Company gathers feedback from distributors and customers on how to improve operations systems					
The company can locate and track movement of items within its chain					
The company provides technical assistance to suppliers, distributors and customers					
Maintenance					
Company maintains constant production and supply links					
Company hires more workers when demand increases					
Increasing or decreasing working hours depends on demand					
Employees work overtime more often to clear backlogs					
Company undertakes regular inspection of its products and facilities					
Maintenance services are done regularly to maintain quality standards					
Maintenance services are done when there is less work or when equipment breaks down					
Work and Job Design					
Employees fully understand the goals, policies, and objectives of this organization					
The organization has a reporting and communication structure					
Employees have job descriptions					
The organization provides continuous training of job and procedure					
There is a system for collecting employees' opinions					
Supervisors provide feedback to employees on periodic unit performance					

There is a strong spirit of cooperation in the organization					
Organization takes care of employee welfare					
Layout Design					
Departments are divided based on similarity of duties					
Divisions are grouped depending on products they deal with					
Divisions operate according to their geographical locations					
Designed for ease of future expansion and improvement					
Properly utilize the space available					
It is easy for employees to communicate with one another					
Capacity Design					
Company outsource work to other firms when demand is high					
Company is able to forecast demand accurately					
Company is able to respond to changes in demand quickly					
Process design					
Company does invest in long term systems for operations					
Company is able to diversify in production technologies					
Company embraces innovation in developing new process systems					
The company determines the work flow, equipment needs and implementation requirements for a particular process					
Scheduling					
The company arranges, controls and optimizes workloads in production					
The company allocates plant and machinery resources in various production processes					
Company plans human resources, material purchase and production processes to maximize on economies of scale					

SECTION C: CHALLENGES FACED BY MOTOR VEHICLE ASSEMBLY FIRMS IN NAIROBI, KENYA FROM ADOPTING OPERATIONS MANAGEMENT PRACTICES

2. Please indicate by ticking (√) to what extent the following challenges are faced by motor vehicle assembly firms in adopting operations management practices Where: 1 Not At all, 2 little extent, 3 Moderate extent, 4 Great extent, 5 Very great extent.

Challenges	5	4	3	2	1
Having an unwavering commitment to implementation					
Constant innovations to keep company operations ahead in the market					
Unresolved conflicts between departments					
Difficulty in recruiting the right talent					
Workforce and Social Trends					
Financial Management and Internal Control Systems					
Regulatory compliance with existing governance issues					
Capacity building of employees to sustain continuous improvement					

SECTION D: FIRM PERFORMANCE OF MOTOR VEHICLE ASSEMBLY FIRMS IN NAIROBI, KENYA IN RELATION TO OPERATIONS MANAGEMENT PRACTICES

Please indicate by ticking (√) how firm performance by motor vehicle assembly firms in Nairobi, Kenya has performed in relation to competitors and other existing conditions

Where: 1 Much worse off, 2 Worse off 3 Neutral 4 Better off 5 Much better off.

	5	4	3	2	1
Return on Investment					
Sales volume increased in the current quarter compared to the previous quarter					
The company's set sales projections in the next quarter will have competitive advantage over other firms					
The company has reported relatively high profit in the current quarter against the previous quarter compared to other firms					
Profit margin in the last quarter enabled the firm to expand its operations to cover a larger area compared to other firms					
Market share					
The firm's market share has steadily grown in terms of revenue in the current quarter in relation to the last quarter					
The firm has been able to penetrate the market through increased market segments to in the present quarter compared to competitors					
Where: 1 Very dissatisfied, 2 dissatisfied, 3 Neutral, 4 Satisfied, 5 Very satisfied					
Product quality					
Product performs according to the established standards and metrics as stipulated by regulatory agencies					
New features introduced in the product did not break any of the existing functionality					
The product is stable and reliable from any acts of crashing, hanging or stalling while in operation					
Product is durable and can guarantee customers value for their money					

Where: 1 Very dissatisfied, 2 dissatisfied, 3 Neutral, 4 Satisfied, 5 Very satisfied					
Customer satisfaction					
The firm undertakes customer surveys and feedback information is collated to aid in determining customer needs					
The firm has instituted a mechanism to understand customer expectations to gain competitive advantage over other firms					
Customer loyalty to the firm products is maintained and reviewed on a regular basis to ensure attribute satisfaction					
The firm has established an after sale service for its customers as a way of reward as compared to its competitors in the market					

Indicate any other challenges faced by motor vehicle assembly firms in Nairobi, Kenya in using operations management practices

.....

.....

.....

.....

THANK YOU