CRITICAL SUCCESS FACTORS THAT AFFECT LEAN MANAGEMENT SYSTEMS IMPLEMENTATION IN MANUFACTURING COMPANIES - A CASE STUDY OF GLAXOSMITHKLINE (GSK)

BY

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UNITED STATES INTERNATIONAL UNIVERSITY - AFRICA

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A Research Project Report Submitted to the Chandaria School of Business in Partial Fulfilment of the Requirement for the Degree of Masters in Business Administration (MBA)

UNITED STATES INTERNATIONAL UNIVERSITY - AFRICA

SUMMER 2017
STUDENT’S DECLARATION

I, the undersigned, declare that this is my original work and has not been previously submitted and approved by any other college, institution or university other than the United States International University Africa for academic credit.

Signed ______________________ Date __________________________
Nathaniel Mupe Nyambu (647546)

This project has been presented for examination with my approval as the appointed supervisor.

Signed ______________________ Date __________________________
Dr. Joyce Ndegwa

Signed ______________________ Date __________________________
Dean, Chandaria School of Business
Lean management has significantly become a significant factor in enhancing organizational success. Evidence around the world has found a link between modern day organizational performances with the capacity to advance competitiveness. This has catalyzed players in the manufacturing scene to pursue concerted initiatives geared towards the realization of competitiveness. Lean management is one approach that focuses strongly on continuous improvement of organizational processes towards realization of increased efficiencies. Using a firsthand practical assessment, the study conducted an evaluation into the critical factors that influence effective implementation of lean management program in manufacturing companies in Kenya. The study sought to evaluate the effects of critical factors notably, leadership & management, communication, finance capability, skills & expertise and finally organizational culture on the effective implementation of lean management programs within manufacturing companies.

The study adopted case study research design as it was the most convenient process through which a comprehensive assessment on the effects of lean management factors can be made in a practical basis by observation and evaluation of first hand lean management implementation. The case study was GlaxoSmithKline (GSK) Corporation which is a pharmaceutical and biotechnology company that has adopted lean management program, referred to as GSK Production System. The population of study included all employees in the organization who have direct interaction with the system on a day to day basis. The stratified sampling technique was used in this study. The study utilized a structured questionnaire which had close ended questions covering all the critical components of lean management. Data collected was analyzed using descriptive and inferential statistics. Descriptive statistical analysis included methods for describing, showing or summarizing raw data mainly a measure of central tendency, mean and spread, standard deviation. Raw data was visualized by use of tables and graphs which helped in presenting the data in a more meaningful way for simpler interpretation. This method will describe the central position of all employee feedback frequency distribution data. Both Pearson Product-Moment correlation and Multiple Regression analyses were used to test for relationship between the dependent and independent variables. For this study, data analysis tool to be used will be statistical package for social
sciences (SPSS) computer software version 22.0. A response rate of 83% was achieved, thus providing sufficient information required for assessing the critical factors that influence effective implementation of lean management across manufacturing companies in Kenya.

The study established that leadership and management were vital components for the effective implementation of lean management in manufacturing companies. The study established a p value of 0.620 which indicated a strong positive correlation between leadership and management and the implementation of lean management program. The study found that communication defined the network through which critical information on the implementation of lean management programs is exchanged. The study found that that financial capability is the backbone of effective implementation of lean management system.

The study makes a conclusion that, skills and expertise are critical advance requirements for the effective implementation of the lean management system. The study concludes that the organization culture is critical in the development of the framework that highlights the process and the areas which shall be affected in the process of implementation of the lean management system. These factors had a statistically significant relationship with lean systems.

The study recommends that organizational leadership assume the leadership responsibility for the effective implementation of lean management programs. The study recommends for a comprehensive initial assessment of the communication needs in the initial stages for implementing the lean management program. The study recommends for commencement of lean management implementation upon the availability of sufficient financial resources that will be required for the implementation of the system. The study recommends that, highest priority should be given to the training and imparting of technical skills as basic requirement for interaction with the lean management platform. Since lean management implementation has five stage phases, it is recommended that future studies should focus on a fully deployed and mature system that has already realized the benefits which is realistic and measurable through metrics. The study recommends on benchmarking with other industries to validate all the mentioned factors and evaluate the possibility of prioritizing the factors based on the impact felt on the companies.
ACKNOWLEDGEMENT

I would like to express my deepest appreciation to my supervisor, Dr Joyce Ndegwa for her invaluable and insightful support and guidance that has enriched the results of this project.

I wish to thank and appreciate all members of my family for their relentless efforts and unfailing support, sacrifice and patience. I am indeed very grateful to GSK fraternity for their support throughout the course. I wish to recognize the efforts of all those who took part in this study in one way or the other.

I wish to convey heartfelt gratitude to my fellow colleagues at GSK, USIU and friends who were involved at some point to make this project a success. May God, bless you abundantly I remain evermore thankful to the almighty God for his profusion of grace, glory and mercy during the complete period of my study.
DEDICATION

I take this opportunity to dedicate this study to my Mum, Martha Mukina Mwilu for her consistent support and discipline instilled since my early childhood which was a key pillar in pursuing my MBA course.

I also dedicate this study to my friends; Abby Campbell, Kevin Kimani, Julius Mwangi and Pauline Kendi for their immense support and encouragement which is beyond remembrance.

God bless them all.
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<table>
<thead>
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<th>Abbreviation</th>
<th>Description</th>
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<tbody>
<tr>
<td>5s</td>
<td>Sort, Set, Shine, Standardize, and Sustain</td>
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<td>CAPA</td>
<td>Corrective Action and Preventive Action</td>
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<td>CDMS</td>
<td>Controlled Document Management System</td>
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<td>CSF</td>
<td>Critical Success Factor</td>
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<td>FLL</td>
<td>First Line Leader</td>
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<td>FMCG</td>
<td>Fast Moving Consumer Goods</td>
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<td>GMS</td>
<td>Global Manufacturing and Supply</td>
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<td>GSK Production System</td>
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<td>GlaxoSmithKline</td>
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<td>GwP</td>
<td>Gemba with Purpose</td>
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<td>JIT</td>
<td>Just In Time</td>
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<td>Kenya Association of Manufacturers</td>
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<td>KPI</td>
<td>Key Performance Indicators</td>
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<td>Lean Management Implementation</td>
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<td>Operator Standard Work</td>
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<td>OTC</td>
<td>Over the Counter</td>
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<td>OEE</td>
<td>Overall Equipment Effectiveness</td>
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<td>P&amp;G</td>
<td>Procter and Gamble</td>
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<td>PM</td>
<td>Performance Management</td>
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<td>Problem Solving</td>
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<td>Quick Response Action Plan</td>
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<td>TAP</td>
<td>Tiered Accountability Process</td>
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<td>TPS</td>
<td>Toyota Production System</td>
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<tr>
<td>TQM</td>
<td>Total Quality Management</td>
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<td>UK</td>
<td>United Kingdom</td>
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<td>UNECA</td>
<td>United Nations Economic Commission for Africa</td>
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<tr>
<td>DMAIC/DV</td>
<td>Define, Measure, Analyze, Improve, Control/ Design, Verify</td>
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CHAPTER ONE

1.0 INTRODUCTION

1.1 Background of the Problem

In the present global business scenario, competitiveness of industrialized companies is defined by their ability to meet and react as quickly as possible to the dynamic environment set-up and to manufacture and supply superior goods at lower price as per demand of the consumer at the end of the supply chain. Being more efficient is the focus for a firm that wants to earn profit in the global market. Today, all the manufacturing enterprises are struggling too hard to achieve their goals, objectives and their capacities by proper scheduling and skillfulness, through increased application of automation systems and advanced concepts, e.g. lean manufacturing, total quality management (TQM) and just-in-time (JIT) (Singh & Belokar, 2012).

Lean management is not just a series of steps and tools purchased to work like programmable logic controlled machines. Among these innovative models, lean manufacturing is acknowledged by the manufacturing firms as a key driver to achieve World-class competencies (Sharma, 2013). Many Multi-National Companies (MNC’s) who have implemented lean manufacturing concepts have experienced significant reduction in manufacturing cycle time, operation expenses, and reduction in defects with other benefits. It is generally agreed that for this type of program to be effective, it should embrace the role of leadership and management in the organization from top to down while ensuring that employees are constantly inspired and involved in key tasks. Among the issues facing the current deployment of lean ways of working is having the right leadership teams that would empower the shop floor staff members and build sustainable systems that would eventually significantly reduce waste, losses due to accidents and defects on final products and thus increasing the companies’ profits. (Duttai & Banerjee, 2014). The responsibility of managers and or leaders in lean implementation is, in the undisputed opinion of many scholars.

According to Jedynak (2015), the opposing attitudes of managers has consequences. On one hand Jedynak found out the attitudes related to manager’s concerns and realized that in such scenarios managers and leaders consciously or not sabotage lean management. Despite the
presence of a well populated catalogue of required behaviors of leaders and managers it was 
difficult to demonstrate commitment and leadership which was viewed as highly insufficient.

Considering the uncertainty of globalization and technological fluctuations, the global 
business environment has become more turbulent and the competition has stiffened to 
uncontrollable heights. The manufacturing industry becomes increasingly vital to the global 
economy which has recently gained considerable attention from scholars and practitioners 
internationally. Kenyan manufacturing companies such as pharmaceutical and fast moving 
consumer goods (FMCG) really need to improve their organization communication strategies 
to seamlessly implement lean management practices and eventually attain higher competitive 
advantage as compared to other rivals among the Kenya Association of Manufacturers (KAM). Despite Kenya’s ambition of becoming the East Africa’s hub, the industrial sector 
however, has for a long time neglected the importance of developing capabilities in 
communication and having the function represented as a support to the company’s core 
business (Jeyaraman & Teo, 2011).

Managers at all levels should as well work to create interest in the adoption, implementation of 
lean management principles and effectively communicate the change to everybody within the 
business. Therefore, adequate clear communication is a necessary complement of management 
and leadership support (Rymaszewska, 2014). Bhasin (2012), states that lean manufacturing 
necessitates clear communication, not only during or between day and night shifts, but also 
between all production value streams. Furthermore, the organization must develop clear 
communication channels that will ensure direct constant engagement exist with customers and 
suppliers while providing a simplified model of sending and receiving feedback to complaints 
related to goods produced. For successful lean implementation, Companies need to invest in 
sustainable communication pathways that are broad and efficient (Karim & Arif-Uz-Zaman, 
2013).

Compared to other countries in Africa, Kenya manufacturing companies cost of production 
has increased by percent within a span of three years which saw Colgate Palmolive, Eveready, 
Reckitt Benckiser, Tata chemicals, Cadbury Kenya, Bridgestone, Kenya Flour spar, Devki 
Steel and Procter & Gamble have also shifting their bases (Wafula, 2016). Economic crisis 
calls for government and investors to quickly respond to financial constraints that affects the
successful operation of businesses within a certain market. In respond to external environment companies prefer cost cutting by eliminating value adding programs. The existing economic crisis affects manufacturing firms drastically (Elstrodt, Manyika, Remes, Ellen, & Martins, 2014). To overcome the economic crisis, multinationals must implement Lean management more effectively to develop a culture of continuously improving the processes and other ways of working. Because the implementation roadmap is a long milestone full of challenges, it is important for companies to ensure the capital expenditure financial kit is well aligned. Even with inflation and other financial issues, if Manufacturing companies such as GSK adopt Lean Management principles strongly all throughout, the growing rate will be significant noted (Goehnera, Mello, & Bandeira, June 2016).

Skills and expertise is not just something inevitable in the market for manufacturing companies, but the availability of proficiency and right first hand expertise is a key factor of success and competition so important that the manufacturing companies that will not embrace knowledge and capability development among their employees in the coming years are destined to sharply decline (Jedynak, 2015). Skills and expertise reinforcement through training and development function has always been neglected in many companies with assumptions that productivity improves as one gains experience with daily events encountered. Failure to prioritize the need to have right skills and expertise has seen most companies not implementing the lean management system successfully. Basic process skills are required even for managers so as to enable them understand the technicality on the shop floor prior to incurring losses due to poor capability. Some firms argue that, training of upper and middle level managers is more important than focusing on people working on the production facilities but again both groups are essential to ensure business continuity. Organization can learn quickly through benchmarking against leading firms. Further knowledge on lean implementation can be accessed by use of expert with specialized skills either internally from the organization resources or externally from renowned consultancy firms. Studies show that those plants at low maturity stages have shown keen interest in use of experts from external sources and have realized significant improvement in terms of awareness and adoption of lean management systems. Interestingly, among the oldest plant at high maturity management did not emphasize on use of external experts and thus most of them have struggled for decades with high expenditures incurred. In a nut shell, retaining and tapping local knowledge is
regarded much more vital than the use of private consultants. However, organizations starting
the implementation of lean management may require the guidance from external consultant
with vast experience to build on the local talent in the business (Netland, 2015).

Unlike the other Industries such as tourism, the manufacturing industry has shown little or no
interest at all towards building organizational culture that would have an impact to the
consumer at the end of the supply chain. Organizational culture offers a structure with respect
to the behavior of workforce in the company. The type of culture created within an
organization result in either negative or positive effects towards lean management
implementation. Employees would want to be considered as an integral part of the company’s
growth process for them to show commitment towards the priorities (Nag, 2011). Elstrodt et al
2014, insists that a good culture incorporates the employees’ views that in turn align their aims
and objectives with those of the company and feel responsible. In such cases where the
employee efforts are always appreciated by management and rewarded lean management can
be easily implemented and used successfully thus resulting to positive performance of the
company (Nag, 2011). Changes of mindset grants employees within the manufacturing
facilities an aim in their daily working life and have the likelihood to change attitudes and
characters, so that the staff begin to think wide, differently and become more willing to
participate in company’s continuous improvement initiatives (Kovacheva, 2010).

On the contrary, lean management systems implementation fail where managers become task
masters since employees starts developing fear and distrust. The employees implementing lean
would not understand the implications of their tasks and thus may not show commitment since
they did not participate in creation of overall goal of the program. In order to have good health
of lean management, the organization needs to collaborate with employees and develop a
conducive organizational culture .consequently; it is important for manufacturing companies
to eliminate negative factors that hinder lean management implementation and adoption in
order to create a positive organizational culture and working environment (Sharma,
2013).Generally, researchers confirm that the whole process of lean implementation is a
complex assignment and it is evident that little scholarly work has been done to determine the
critical success factors as the imperative ingredients that affect efficient and effective lean
management implementation. Adopting lean in manufacturing started way back 1930’s but up
to date the research seems to be at early stages. Lean application to manufacturing sector enhances value added to both services and operations which in turn pushes the product on time in full error free to make the customer happy (Näslund, 2013).

GlaxoSmithKline plc (GSK) is a British science-led global healthcare company headquartered in Brent ford, London. Established in 2000 by a merger of Glaxo Wellcome and SmithKline Beecham, GSK was the world's second largest pharmaceutical company as of 2015, after Pfizer then followed by Novartis, Merck, Hoffmann-La Roche and Sanofi, Emma Walmsley has been the chief executive officer since 2017. (GlaxoSmithKline, Mar 2017). The Company is engaged in the creation and discovery, development, manufacture and marketing of pharmaceutical products, including vaccines, over-the-counter (OTC) medicines and health-related consumer products. This company suits best for the study since it has been involved with lean management systems and currently it is deploying a new integrated system known as GSK production System (GPS).

The Company's segments include Pharmaceuticals, Pharmaceuticals R&D, Vaccines and Consumer Healthcare. The Pharmaceuticals business develops and makes medicines to treat a range of acute and chronic diseases. The Vaccines business develops, produces and distributes over 1.9 million vaccines every day to people across the world. The Consumer Healthcare business develops and markets products in various categories, such as Wellness, Oral health, Nutrition and Skin health. The Pharmaceuticals Research and Development (R&D) focuses on the discovery and development in various areas of research, which include human immunodeficiency virus (HIV) and infectious diseases, oncology, immune-inflammation, respiratory and rare diseases (FinancialTimes, 2016).

GSK Nairobi is located on Likoni Road off Lunga-lunga road in industrial area. The site It sits on approximately 33,000 square meters of land and presently employs about 600 employees. The site was originally commissioned in 1960’s as an Over-The-Counter (OTC) drug factory. Main products manufactured include Zantac, Sensodyne, Aquafresh, Ventolin, Calpol, Actal, Panadol and Gastro-intestinal powders. The site houses three business units': global manufacturing and supply, Pharma and consumer commercial. In 2013, GSK manufacturing and supply business unit introduced lean management system known as GSK production System (GPS) an equivalent of Toyota production System (TPS) (GlaxoSmithKline, Mar
The GSK Production System (GPS) is a standardized way of working to develop and improve our people, processes and performance. It’s the way we will work and behave to drive towards our GMS goal of zero accidents, defects and waste. GSK Production System has five distinct phases namely; Prepare, diagnostic, design, implement and embed and grow phase. The GPS Basic standards work as a continuous improvement system which means we will move from being reactive and firefighting to being proactive by helping people solve the top three priority problems in each area and level every day (CDMS, 2017).

The GPS has six basic standards each having a clear purpose. The first standard is Performance management which consists of Visual control, KPIs and Tiered Accountability. Its purpose is to engage people and develop their capability to reveal and solve the appropriate problems to improve business performance. The second standard is problem solving which focuses on safety, defects and waste and majorly provides a standardised, disciplined approach to identify immediate single issues and recurring or systemic issues, their root causes and how to develop and apply robust solutions in a timely manner to prevent recurrence. Zoning and 5 s forms the third pillar of GPS standards with the aim of creating a visual, sustained safe, efficient & quality driven work environment. The fourth standard is called Operator standard work whose purpose is to ensure consistent operation of company’s processes to deliver zero accidents, defects and waste. Gemba with purpose whose origin is Japanese forms the fifth pillar of the GPS with a clear role of ensuring that leaders engage and develop the capability of their people to improve processes and solve problems. Lastly is the Leader standard work pillar whose function is to enable leaders to confirm that processes operate as designed and are improved on daily basis when there are opportunities (Amanda, 2017).

The GPS mindset and behaviors highlight the critical few behaviors that underpin all other elements of the GPS. These are the behaviors that apply to all GSK employees and are essential to their ability to deliver zero accidents, zero waste and zero defects but also maintain and sustain them. GSK has expectations of everyone which align with and support the critical behaviors defined in the GPS mindset and behaviors. The company’s expectations are to set direction and inspire others, working across boundaries and breaking the silos, releasing energy while at work, constantly developing capability and talents, driving performance and
living the company values which are respect for people, transparency, integrity and customer focus (Jouber, 2014).

In terms of behaviors, all GSK employees are expected to deliver on their promises through taking personal accountability, communicating problems honestly and asking for help when needed. This is important since the employees’ actions and promises matters to the patients at the end of supply chain and if ignored more waste, defects and accidents will be recorded (James, 2017). According to Njoroge, 2017 employees are required to continuously improve every day by following standard work, using plan, do, check, adjust to improve, prioritizing the top 3 problems at their level and asking themselves what they learned, taught and improved every day. The lean management system requires leaders to involve themselves with operations and inspire employees in the factory by going on the ground to see what is going on, participating in problem solving meetings and having honest, coaching and trustworthy conversations (Moir, 2017).

Lean management is supported by techniques such as Value Mapping, Single Minute Exchange of dies, single piece flow, inventory control via card system, total productive maintenance, visual management and production line optimization. Main core lean methods are Cellular Manufacturing, 5S, JIT, Total Productive Maintenance (TPM), Kaizen, Kanban, Six Sigma and Pre-Production Planning (3P) (Sharma, 2013).

1.2 Statement of the Problem

Critical Success Factors could potentially spark environmental turbulence with the global manufacturing industry and change the way manufacturing companies conduct their business and greatly improve the internal organization efficiency and effectiveness without investing on automation. However, manufacturing companies must match the factors with current technology and strategic goals. (Gurumurthy & Kodali, 2011).

In manufacturing industry environment, the CEO’s must not only focus its strategic attention on areas from better technological advancement and lean management implementation milestones but also develop a clear understanding of ways of improving competitive advantages with minim al cost always. One of the frightening challenges for every senior
The manager of global firms is to sustain their firm competitive advantage in a long term (Priti, Avinash, & Wasu, 2013). Globally, companies face pressure for charging low cost and progressively increasing productivity and at the concurrently innovate and improve product design, to compete on the worldwide marketplace. Productivity of the firm is said to be easily achieved if the decision to lower costs is agreed. Lean management systems are spurring the ways of innovating the businesses and reaching out more customers, as well as improving efficiency and effective ways of working among staff on management and lower levels. New models are arising as the lean practices get adopted into the companies. However, researchers do not clearly demonstrate the how lean management systems may affect companies’ productivity and what areas should be of concern other innovations (Kumar & Abuthakeer, 2012).

The manufacturing industry in Kenya is no exception when it comes to competitiveness and the need for implementing lean management tools successfully for improved efficiency and effectiveness of the production plants. With increased importation of cheap products from countries such as China and Taiwan, Kenyan manufacturers face the growth limits and this is an opportunity for the manufacturers to re-examine their ways of working in production facilities. There was need to explore the lean management systems and critically find out the root cause to failure within the adoption and implementation face especially when the facility was in good condition (Were, 2016). Priti et al. noted that management of Kenyan manufacturing companies seems to have forgotten the importance of understanding the key challenges that would have impact on the implementation of lean thinking. It is evident that most of the companies resolve issues related to productivity through heavy capital expenditure with the notion that this is to remedy to poor profitability. Nearly all the research cases seemed to have been dropped at early stages and the few ones which are complete identified lack of determining the critical success factors during implementation of lean management as a huge gap that has been unresolved for ages (Tome, 2012).

Kenya represents East and Central Africa’s best developed manufacturing technological advancement and the regions hub for scientific product introduction. Despite the African region growth rate decline by 3.9 percent in 2014 to 3.7 percent in 2015 Kenya’s manufacturing sector grew from 5.6 percent to 6.4 percent. Kenya’s manufacturing sector is
one of the most stable and technologically advanced in the region (UNECA, 2016) While most of the manufacturing companies are struggling to implement lean management to improve their competitive advantage over rivals within the industry, many of them lack clear roadmap. Scholars and industrial practitioners in Kenya have also shown that despite knowing the benefits of Lean Management to the organization there has been a huge failure of related projects at the early stages. This is attributed to different sources namely; lean tools, lean concepts, critical success factors and facility requirements (Ogutu, 2014). A survey conducted by Kenya Association of Manufactures (KAM) in collaboration with ministry of industrialization revealed that more than 80 percent of the manufacturing companies based in Nairobi Industrial area are not confident that their lean management systems are the best in the industry and they had right measures that would proactively reduce the chances of implementation sabotage.

Toyota, (2017) disclosed that a significant improvement in successful implementation of lean management systems in the manufacturing companies in Kenya after attending their Toyota training workshops. Many of these companies are aware of key factors that should be keenly watched during LMI phase in an attempt to increase productivity. However, due to lack of comprehensive surveys, many of these firms lacks the basis to determine how factors such as leadership, management, organizational culture, financials and capability building affects LMI. None of these manufacturing in Nairobi area can prove with certainty whether getting it right from the leadership, financial, culture and expertise has significantly improved the implementation and output of the process (Kenya Association of Manufacturers [KAM], 2016).

Mwacharo, (2013) from HAMK university of Applied Sciences undertook a research on investigating the challenges and developing a recommendation for implementing Lean management techniques in Finland and Kenya while (Kazmierski, 2015) undertook a research to show which factors affected implementation of lean 5s tool in automotive industry. However none of these studies captured the effects of critical success factors on implementation of Lean Management. Literature review from other articles clearly indicated the same gap exists and thus this served as catalyst for this study to assess the effect of critical success factors on lean management implementation among manufacturing companies – A
case study of GSK. In a nutshell all the mentioned aspects are attributed to one root cause which is lack of understanding the relationship between critical success factors and lean management systems. Thus, Knowing and understanding these factors is key to any manufacturing facility prior to implementation. In other words there is lack of in-depth research on LMI and CSFs especially with respect to continuous improvement framework failure rate. Furthermore, this study is projected towards building a framework that will be used by manufacturing companies to determine how each factor will be handled and ensure successful implementation of lean management systems. This means that the study project will be able to address the existing gap of uncertainty on contributions of critical success factors during lean implementation. In that sense, conduction a qualitative study give this project a go ahead in conjunction with development of quasi-experimental study that can tackle cause and effect relationships for few selected factors.

1.3 General Objective

The study was aimed at assessing the effects of critical success factors on implementation of lean management systems in manufacturing companies and in this case the focus will be on GlaxoSmithKline, Kenya.

1.4.1 Specific Objectives

Based on the broad objective above, the specific objectives of this research included:

1.4.1: To evaluate the effect of leadership and management on lean management systems implementation at GSK
1.4.2: To examine the effects of communication on lean management systems implementation at GSK
1.4.3: To assess the effects of financial capability on lean management systems implementation at GSK
1.4.4: To determine the effects of skills and expertise on lean management systems implementation at GSK
1.4.5: To evaluate the effects of organizational culture on lean management systems implementation at GSK
1.5 Significance of the Study

There are several benefits that will accrue from doing this study. The findings of this study will benefit the following: -

1.5.1 Management Practice

The first beneficiaries of the study outcome will be GSK itself. Executive management is ultimately accountable for developing continuous improvement framework and operational strategy that will drive the organization towards realization of its mission and vision. With this study, the executives will develop a plan that is well aligned with the market needs and will make value adding choices on the appropriate factors that the company should watch on while implementing lean management. The fastened delivery process of goods and services offered will be added advantage to GSK compliance team since there will be minimal recall of products due to long overstay in the supply chain because of poor ways of working.

The Consumers at the end of the supply chain will also benefit a lot since there will be efficiency and effectiveness of processes within the production plant thus resulting to low costs of product. This in turn makes the customer happy due to reduced costs of goods at the wholesale and retail chains.

Suppliers to manufacturing sites will benefit from this study in the sense that process improvement would create a vacuum for more raw material and service provision. This creates stability and confidence in suppliers and other third party contractors directly linked to manufacturing companies. With increased reliability both the manufacturing company will be able to plan early in advance and evade unnecessary costs that would come up in the event of surprises.

Distributors on the other hand also benefit from the findings of this study. The successful implementation of lean management helps in improving key performance indicators (KPI’s) used in logistics. Theses KPIs include conformance to shipment and conformance to plan. Distributors can promise their customers and deliver without any delays thus building trust that eventually widens their market base.
1.5.2 Researchers

The study will be an important catalyst for further exploration and research in this area. This is particularly so because the study is suitable for further research by scholars. It will also form the basis of others studies with interest in the process maturity model in the manufacturing industry in Kenya. The study will contribute to the body of knowledge on the strategic role played by LMI in the organization. Researchers in the field of management and other related disciplines may also extend this study to determine other factors that influence LMI. Further scholarly studies can be conducted especially with keen focus of doing gap analysis to determine if there could be other potential areas that have been left out. Based on findings that will be concluded in this study, researchers can borrow a lot and work on different implementation approaches using different theories or models and show how compatible they can be on practical application within the manufacturing industry.

1.5.3 Policy Makers

The study will also provide a benchmark for firms, institutions and governing bodies with the mandate to develop enforce or implement policies. Institutions should focus on reviewing their policy dealing with lean management practices to accommodate the recommended actions as per the study. The global GSK offices should focus on principles, rules and guidelines formulation or adoption to reach its long-term goals. These policies and procedures can be designed to influence and determine all key decisions and actions, and all tasks taking place within the manufacturing industry. The policy owners will appreciate the role that LMI can play in the improvement of manufacturing process and their relationship with the CSF’s. Some of the benefits brought about by adoption of the lean management systems include competitive advantage that policy holders would be interested to keenly watch. The insights would also improve the policy maker’s perception of the manufacturing industrial process improvement frameworks and hence the productivity expectation.

1.6 Scope of the Study

The study was carried out at GlaxoSmithKline, a Pharmaceutical, biotechnology and an FMCG company in Kenya. The study focused on the current lean management systems known as GSK Production System which has been under deployment since 2014. The target group for
the study comprised of management and shop floor employees who are directly involved with manufacturing activities and have the basic knowledge of GSK Production System. The study was based on the implementation status as at December 2016. The data used, spread for a period of 24 months, from 2015 to 2016.

1.7 Definition of Terms

1.7.1 Lean

The term Lean is also referred to as Lean Enterprise, Lean Management, Lean Manufacturing, or Lean Production. This is a versatile set of tools and techniques that many firms choose to apply and sustain as a means of increasing the effectiveness of manufacturing and the overall consumer value while concurrently eliminating waste. (Duttai & Banerjee, 2014). Lean management approach is used to run an organization that fosters the perception of continuous improvement, which is a long-term approach to production that analytically seeks to achieve gradual, incremental changes in manufacturing processes with a view of improving efficiency and quality. (Panizzolo, Garengo, Sharma, & Gore, 2012). According to Process Excellence Network (2010), most lean manufacturing plants are capable of producing products or services in the specified value added work assigned time to transform its state, fit, or function.

1.7.2 Just In Time

It is basically the principle of just-in-time, since it is a management thought that endeavors to eliminate sources of production waste by producing the right part right first time and in the right place. It generally consists of three elements namely; JIT purchasing that deals with raw materials, JIT production for transformation of raw materials into finished goods and JIT distribution that supports shipment of goods produced (Zhou, 2016).

1.7.3 5s and Zoning

Zoning is a process aimed to develop clear accountability and responsibility across all areas of the site to ensure adherence to the 5S standard and also ensure ownership for every single area of a site including all remote, peripheral, shared and nonproduction areas. 5S is a process to organize the workplace with the aim of working as a team to create a safe, efficient and quality-driven work environment enabling the team to identify abnormality or deviation from
the standard before it has an impact on the flow of the process, effectively engaging and aligning the team by tackling local and immediate constraints to flow. It helps in supporting Good Manufacturing Practices (GMP) compliance and creating a stable foundation to deliver zero accidents, defects and waste. (Toyota, 2017).

1.7.4 Kaizen

Kaizen is a Japanese term used in manufacturing basically to translating to 'continuous improvement' or 'change to develop to be good’. This management concept originated from the Japanese engineers in purposely to continuously achieve gradual incremental changes for the better, inspiring and involving all employees within the organization from shop floor to upper management levels. The main objective of Kaizen is ensuring there is more output in production value while minimizing waste thus achieving superior efficiency, which in turn enable a company attain healthier working environment, and develop steady processes pipelines by standardization. (Lean Enterprise Institute, 2017).

1.7.5 Critical Success Factors

This is a term used in management for an element that is necessary for a company to achieve its objectives. It is a task required for ensuring the success of a company or an organization. Critical success factors refer to those little things that must go fine to ensure success for a manager or a company CSFs incorporates issues vital to a firms current operating activities and to its prospects (Toyota, 2017).

1.7.6 First Line Leader, FLL

These are those managers who are appointed by the organisation to exhibit the right behaviours among team and constantly engage with all employees working on the ground floor to achieve coaching, mentoring and motivation of the team during problem solving (Amanda, 2017).

1.7.7 Key performance Indicators, KPIs

These are specific measures set by management or senior leadership and should be in aligned with organizational objectives, measurable, time bound, specific, reliable and achievable.
They can either be lag measures or lead measures tracked to check performance of employees through accountability boards (Lean Enterprise Institute, 2017).

1.7.8 Performance Management

A system of revealing problems through visual management, visual control boards and tiered accountability process. Visual Management systems make real-time abnormality in the 4M’s (Man, Method, Material and Measurements) visible and the performance of our processes visual. Visualisation of the 4M's is through several different formats: 5S standards, operator standard work, standard equipment settings, etc. Usually, the performance of organizations processes will be displayed on a Visual Control board. KPIs allow leadership to understand and challenge performance gaps and progress of against corrective actions and ensure the appropriate behaviours to drive the right response in the right timeframe (Priti, Avinash, & Wasu, 2013).

1.7.9 Visual Control Boards

Visual control boards provide focus on the process and make it easy to compare expected versus actual performance and drive improvement. The primary reason for visual control is to define the standard (desired normal state) and then to quickly reveal any deviation from that standard and drive a rapid response to address the issue. To achieve organizational targets management, need the ability to link strategy deployment to work place visual control. In effect, if the visual system is in place, managers can go and see and check every day at any moment, whether strategy is being implemented. Visual controls connect people to their process and provide a foundation for employee involvement. They visualise performance against lead and lag metrics linked to firms targets and next target condition (GPS, 2014).

1.7.10 Tiered Accountability Process, TAP

These are accountability meeting process which formally assesses actual performance versus target to confirm the priority problems and how to manage them to ensure performance is returned to target. Daily accountability is the vehicle for interpreting the observations recorded on the visual boards, converting them into assignments for action, and following up to see that assignments are completed. These accountability meetings follow up on the stories revealed by the visual controls to ensure assessment of abnormality, assignment for corrective action
and/or improvement and ensure accountability for having completed the previous day’s assignments (Lean Enterprise Institute, 2017).

1.7.11 Gemba

Gemba is a Japanese term that means ‘Go to the actual scene and see’. The Gemba routine is the way in which leaders align people and develop their capability to understand problems and develop solutions. One of the key principles of GPS is to “Go and See” to understand how processes produces an outcome. When an issue occurs, the first step should be to go to Gemba to deeply understand the problem and the causes, rather than solely rely on data and second-hand information. The purpose of Gemba is to develop people to deeply understand how to continuously improve their processes to achieve the organizational goals (LeanKit, 2017).

1.7.12 Root Cause Analysis (RCA)

This is a standardised, disciplined approach to identify root cause and apply robust solution. Through revealing and solving problems at all levels within the organisation management will drive a continuous improvement culture. The purpose of the Problem-solving tools is to provide a standardised, disciplined approach to identify immediate single issues and recurring / systemic issues, their root causes and how to develop and apply robust solutions in a timely manner to prevent recurrence (Lean Enterprise Institute, 2017).

1.7.13 Mindset

Mindset refers to a way of thinking or rather can be termed as a person's attitude or set of views about something. Mindset and behaviours work hand in hand to highlight the critical few behaviours that underpin all other elements of the continuous ways of working Mindset and behaviours apply to all employees within the organization and to their ability to deliver zero accidents, zero waste and zero defects but also maintain and sustain them. (LeanKit, 2017).

1.7.14 Kanban

Kanban is Japanese word for “visual signal” or “card.” Actual cards where used by Toyota line-workers to signal and simplify steps in their manufacturing process. Kanban system also standardized cues and advanced processes, which enhanced minimization of waste and
maximize value of goods produced. Kanban helps staff in manufacturing plants exploit the benefits of visual information by using magnetic cards or sticky notes on a wallboard to create a “picture” of your tasks (LeanKit, 2017).

1.7.15 Value Stream Mapping, VSM

A common method used in manufacturing for examining the current state and developing a future state for the sequence of tasks carried when a raw material is received, sampled, transformed into product and shipped to the market. The value stream mapping process involves use of special process flow charts to symbolize lean management and improve information and inventory flow (Isixsigma, 2017).

1.7.16 Takt Time

Takt time is the highest amount of time in which a product or service needs to be produced or delivered to satisfy consumer demand. This term comes from the German word "Takt," which meant pulse (Process Excellence Network, 2010). According to Zhou, 2016 Takt Time can also be defined as the rate at which products or services should be produced or delivered to meet the rate of consumer demand.

1.7.17 Six-Sigma

This simply means a measure of quality that endeavors for near perfection. Six-Sigma is a well-organized, data-driven approach and tactic for eliminating defects aimed at driving toward six benchmark deviations between the average and the nearest specification limit in any manufacturing process – from manufacturing to transactional and from product to service (Isixsigma, 2017).

1.7.18 Total Quality Management (TQM)

TQM is a management approach that seeks to combine all organizational departments to focus on making the customer happy and meet the organizational aims. TQM describes the culture, attitude and co-operation of a firm that strives to give customers maximum satisfaction. It enforces management and employees’ involvement in the continuous improvement framework of the production of goods and services. TQM brings profitability to the business through
combining both management and quality aspects of manufacturing plant (Process Excellence Network, 2010).

1.7.19 Overall Equipment Effectiveness (OEE)

This is key tool that measures utilized planned production time. OEE is the single best metric for discovering losses, benchmarking progress, and enhancing the productivity of production equipment. The factors that are keenly focused are availability of the equipment, performance of the machine and quality of finished products (OEE, 2017).

1.7.20 Cellular Manufacturing (CM)

This is a lean method of producing finished homogenous products using groups of team members, cells, workstations, or equipment, to improve operations by avoiding setup and unnecessary expenses between operations. Cellular manufacturing concept increases the mix of products with the elimination of waste at high limits all time. Each cell composed of equipment and workstations is arranged in an order, to maintain a continuous smooth flow of goods produced (LeanKit, 2017).

1.8 Chapter Summary

This chapter has outlined the background of the study, problem statement, purpose of the study, research questions, and importance of the study, scope and the definition of key terms used in the research. Chapter 2 of the research project will cover the literature review, Chapter 3 outlines the research methodology followed in the study, and Chapter 4 will present and explain the data collected while Chapter 5 will cover the study discussion, conclusion and recommendations.
CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 Introduction

This chapter is structured based on the specific objectives. It reviews the relevant literature available that focuses on the effects of critical success factors on implementation of lean management systems in manufacturing companies. The chapter defines the effects of leadership and management, communication, financial strength, skills and expertise and organizational culture on lean management systems implementation. It also highlights the need to implement lean management principles, when to implement, where to implement, brief description of various lean tools and methods traditionally used.

2.2 Effects of Leadership and Management on Lean Management System Implementation

According to Achanga (2006) globalization, new technologies, leadership and management are having huge impacts on the processing and manufacturing industry worldwide. This situation led to significant increase in new entrants to the market that deals with finished goods, stimulating stiff competition in the external environment. Most of the manufacturing companies are vulnerable since they operate in an environment that is not highly regulated and has less barriers to new entrants. The bargaining power of suppliers has increased significantly all over the world. Due to this turbulent environment, manufacturing companies are placed well in best position to implement lean management that helps in proactively mitigating the risks of business failure and reactively respond to the ever-changing circumstances within the market (Manoj, Maneesh, & Gellynck, 2016).

Currently, European and American companies facing leadership challenges have witnessed declining rate of manufacturing which resulted from third party manufacturing strategy in Far East as companies searched for cheaper costs of production and higher profitability. Despite emphasizing on systems embracing good leadership and management practices most of these companies in the west did not get it right first time and thus contributing to a large exodus of
firms towards the east especially in China and Taiwan whose manufacturing capability was high but at a low cost compared to America and Europe. From a manufacturing perspective, lean management is key component that defines how successful an association can be while utilization scarce resource to the maximum (Buehlmann & Fricke, 2016).

From a competitive business environment perspective, one of the most widely accepted strategies for performance improvement is Lean Manufacturing. According to the LEI (Lean Enterprise Institute) founded in 19207 by James P. Womack, Lean focuses on creating value for consumers through effective utilization of scarce resources. In manufacturing, lean principles basically aim at reducing waste both in internal process and external ways of working. Good lean practices improve the company product flow and hence increase service delivery across the market (Qadri, 2016). Initially mass production dominated causing Henry Ford to emphasize that it was the only best way that an automotive manufacturer would be competitive. The goal of lean management is ensuring that manufacturing companies do more within little specified time range, space allocated, less human intervention while at the same time ensuring that the customer gets the demanded good at a highly economical way (Achanga, 2006). For lean management to be successfully implemented there must be values and objectives well stipulated and availed to all employees within the organization. Such values which creates good leadership environment include respect for people, transparency, accountability, continuous improvement mindset, patience, focus on process and an ability to understand all employees (Qadri, 2016).

Different sectors such as automobile, aerospace, pharmaceuticals and consumer goods companies have adopted lean tools and techniques. Previous researches show that there exists literature on various models, theories, tools, techniques and performance metrics for lean management systems implementation. (Ahmad & Azuan, 2013). Despite having several benefits, literature review clearly indicates that there are gaps since not all the lean management programs succeed and in fact most fail at the early stages of awareness or adoption. Taking a closer look at the industry in the global market, only Toyota has seemed to be the most beneficiary since lean inception into the manufacturing world. Ahmad and Azuna (2013) indicate that the main objective to introduce lean principles in a processing plant or
factory is to generally increase output, reduce cycle time taken and reduce defects by ensuring that goods are of high quality.

Experts believe that leadership and management is the pivot to successful implementation of lean in manufacturing companies. In current market, the winners are organizations with right leader and managers who keenly focus on people aspect and process aspects with an equal balance that avoids affecting either of the parties involved (Manoj, Maneesh, & Gellynck, 2016).

Even though there are different many factors that affect lean management implementation, scholars argue that one of the most ignore determinant is leadership and management level within the company (Chauhan & Singh, 2012). According to Chauhan and Singh (2012) commitment by top level management is vital. Management at the top, middle and lower levels failure to embrace the implementation of lean practices may intentionally or unintentionally lead to program sabotage Senior leaders should always take the lead and not only demonstrate leadership and commitment, but also show and work to create interest in the implementation process and effectively communicate the change to all employees within the organization. Organizations with good structures ensure that managers are visible and directly connect to the new structures that enables active participation of all involved members. The top challenges has been lack of prioritizing the program and focusing on core business of running the machine with the expectation of seeing mass production throughout despite losing a lot due to waste. (Pheng, 2014) According to Mwacharo (2013) lack of investment in the lean manufacturing journey by upper management in Kenyan companies has seen it most closing down the shop and turning factories into go downs. The argument is that, if staffs feel that the supervisory team does not respect their efforts, demoralization may take hold and the lean management system implementation effort will eventually fail. Most people argue that it is important to drive change from the shop floor but it is also important that the senior leadership team takes accountability of every event and show how realistic and achievable they are (Radnor, Transferring Lean into government, 2010).

Hierarchies in companies’ structures have a huge influence as pertain on management impact on lean implementation. Most manufacturing organizations with hierarchical structures allow each level to set its own aims, goals, risks, expected targets and carries out its assigned tasks.
This sets up a challenge toward implementation of lean since staff and managers from different layers have to collaborate and identify the root cause of the problem and apply remedies which in most causes lead to indifference when making decisions since none wants to be seen as a loos (de Souza & Pidd, 2011). In Kenyan context, some manufacturing firms have many levels to an extent of having top management making decision that cut across multiple functions.

The success of lean Implementation is purely driven by and excellence leadership and management. Continuous commitment and support offered by leaders and managers in the organization help in creating certainty of the initiative and strengthen the employees by giving them morale to actively participate and develop new ideas where needed (Prattana, Nattapan, & Chen, 2016). According Jeyaraman and Teo (2011) most of the companies which experienced hurdles during lean implementation were ignorant on good management practices. Hence leadership and management practices are known to be fundamental basics that need consideration before successful lean implementation initiatives. The level of management engagement and commitment contributes the largest portion of influence towards implementation of lean.

2.2.1 Employee Empowerment

Personal empowerment is key factor that hugely depends on leadership and management practices exhibited within a certain environment. The more empowered employees feel the more willing they are to help develop good ways of working such as lean (Tome, 2012). In Kenyan, Industries staff at lower levels especially on the shop floor are less or non-skilled and seems to be directed in each task they conduct. According to Kenya Association of Manufacturers, some companies have taken advantage of limiting self-reliance by employees thus dictating everything that goes around to an extent of equating them to robotics. According to Obure (2017), employees hesitated that many manufacturing firms that he has emerged for the last thirty-two years does not see the need to empower their employees at all. He says that, most of the firm’s management develop fear instead and threaten to terminate the contracts failure to follow the set rules and guidelines. This has made many employees contribute less even when they have good ideas that would foster improvement in their daily tasks thus most of these staffs would prefer following the rules and eventually take no responsibilities in waste
reduction. With so much pressure to deliver without challenging the protocol, employees in Kenyan manufacturing companies feel that they have no attachment to lean practices and do not offer full support that would ensure successful implementation (Kenya Association of Manufacturers [KAM], 2016).

2.2.2 Management Engagement

Management should appoint First Line Leaders (FLLs) who are constantly on the ground. The most critical part that many manufacturing companies in Kenya has missed is developing and enabling a first touch team of managers to consistently deliver outstanding quality, service and value to the customers at the end of the supply chain. Concerns raised in these industries are that managers don’t have enough time to spend with staff on shop floor. Management engagement helps in supporting lean implementation through face to face sessions (Lynch, 2016). Through team engagement, employees take responsibility of tasks assigned since they feel to have created the ideas and approved the decisions made. Lean management involves constantly going to the ground to see what is going on and proactively provide solutions before failure occurs rather than leaving the employees struggle by them. According to Mwacharo (2013) lean thinking perspective as an integral management approach is blurred at the managerial level. Most managers would argue that lean thinking is only linked to operations and management practices would offer little support. A study on role of leadership and management in manufacturing published Kenya Industrial Estates in 2010 indicates that most of the Small Medium Enterprises dealing with consumable goods recognized that the role of management on lean was key and could drive benefits not only to operations but other functions of an organization. Through engagement, companies identify problems at the grass root level and develop controls before the consequences occur (Kenya Association of Manufacturers [KAM], 2016).

2.2.3 Management Commitment

Due to poor structures and inefficient processes, most managers lack commitment to continuously improve the production of goods and services, take the lead and be mindful of others when making decisions (Kovacheva, 2010). According to James (2017), commitment by managers involves working with the staff in the team on an hour by hour basis. Committed
manager’s role requires influence and the ability to ensure that individuals work to the standards that are set while being able to raise issues and concerns in a safe environment. Management should show full commitment by living company values and encouraging staff to participate in problem solving and role modeling the expected behaviors in a continuously improving environment. Complacency by management lack of commitment on targets set by organizations and failure of providing feedback on performance, engaging in problem solving, and escalating issues to senior executives are all part of the factors that affect implementation of lean. To meet the needs of all areas or functions management should commit themselves to embrace organizational interactive models that support lean principles. Commitment by management essentially focuses on ensuring collaborative working within their own production team while ensuring alignment of support functions at that location. Due to the dynamic nature of manufacturing plants leaders should dedicate their time and effort towards improving gradually all processes that support product flow (LeanKit, 2017).

Recently, a study on management commitment on Kenyan SMEs indicated that most of the managers are not willing to take ownership of problems as they view them as a burden that does no payback even if the solutions was promptly provided. According to Obure (2013) workers in industrial area based in Kenya would prefer keeping silent in the event of an incident or problem rather than reporting and trying to troubleshoot. In addition, Obure argues that managers do not want to commit themselves in delivering the safety, compliance, output and costs associated with the manufacturing process at their sites. Poor yields have been realized across the GlaxoSmithKline factory with increased waste recorded. On a closer look, it was found out that none of the management team members assigned on the lines committed their time to the floor. As a result of poor obligation, the GlaxoSmithKline manufacturing facility in Kenya witnessed slow implementation of lean management. In the long run, the hour by hour/shift by shift performance directly impacted whether the product is made to the right specification and quality to be able to be delivered on time and in full to the customers. The ability to deliver on successful lean Implementation up to maturity level is through alignment of management strategy and ensuring that lean management systems maturity roadmap is clearly defined and all managers commit to follow it (Moir, 2017).
Thus, for manufacturing companies to concisely implement lean management systems within the plant, the structures should harbor strong leadership traits with capability to develop seamless working environment that is conducive and rewarding. Leadership and management would foster vision and strategy penetration into the business while allowing flexibility within the production plant. Good leadership ultimately cultivates effective skills and knowledge enhancement amongst its employees. Manufacturing would then be able to implement the lean manufacturing concepts successfully if management is well aligned. This study has found out that there is little research on leadership and management impact on lean practices implementation and most of the Companies do not have tactful management know how. Thus, this research project will focus on establishing this factor and establish strategic improvement initiatives possible to curb decline of lean management.

2.3 Effects of Communication on Lean Management Systems Implementation

Communication is a word that has a rich and multifaceted history. This word originates from the Latin language word “communicare” whose meaning is to share impact or make common (Jan & Scarbrough, 2016). Tucker (2015) explains communication as the method of transmitting information and meanings from one person to another using common symbols. In any organization communication plays both coordinating and integrating part in the management of the daily activities of any organization, whether in the department of production, human resources, marketing or logistics. Lean management across the global manufacturing sector is an essential tool which works hand in hand with communication strategies deployed within an organization to ensure sustainability in continuous improvement framework. According to Bhasin (2012), the effectiveness of lean management systems highly depends on the ability of managers to listen and read, on their ability to write and speak clearly. Unfortunately, the manufacturing industries worldwide have not recognized communication as a key driver to business success. Lean management contents need to be well articulated and written to express all employees rather than impress. Between 2003 and 2015, most manufacturing companies where a victim of poor performance and management ineffectiveness because of failed communication strategies.

Due to communication inefficiencies, most of the manufacturing companies struggle to implement lean management systems in Kenya. In GSK alone communication is required
across all functions from the time raw materials are received in warehouse, processed in production and shipped to the market (James, 2017). A study conducted by Karimi (2013), concluded that local and multinational companies in Kenya would better gauge their communication departments and critically think on ways of reviving the fallen management practices that would reduce wastage and improve savings. Results indicated the over 82% of Kenyan Local firms in manufacturing industry did not have a communication function and had no idea if that could be implemented soon. Over half of the Kenyan manufacturing companies prefer sticking to human resources department as the key communication channel while focusing on mass production rather than lean implementation. In an audit conducted by Kenya Association of manufacturers, it was found out than most business in the manufacturing sector mentioned lean implementation as one of their priorities however none produced a milestone that clearly indicated the roadmap towards its implementation. Lean management fits well in organizations that has well develop communication systems through ensuring that there is no bottle neck during lean implementation and solutions are easily found in the event of arising challenges (Karimi, 2013).

2.3.1 Vertical and Horizontal Communication

Vertical communication involves flow of information both up and down the chain of command. It occurs between directly positioned persons and mainly involves both upward and downward communication flows. Upward communication is less prevalent than downward communication. Argyris, (2013) suggest that downward communication is mainly efficient if higher level managers communicate directly with immediate middle level managers or supervisors while concurrently immediate middle level managers’ supervisors communicate with their employees. Numerous sources of evidence affirm that increasing the authority of immediate supervisors tends to increase both performance and satisfaction among staff working in an organization. According to Pelz effect (1952) after attempting to find out the type of leadership style that would have an impact on satisfaction levels of employees. The scope included autocratic versus participative, informal versus formal, management oriented versus front line-oriented. Donald Pelz found that what matters most is not only the supervisor’s leadership style but also whether the supervisor has power. The best approach to give middle level managers or supervisors power is through communicating directly with them.
and having them provide input to decisions. The supervisors are informed first about any arising organizational issues and then they cascade the information down to their direct reports. By doing that, they strengthen their position of communication power. This develops trust between the employees on the shop floor and the supervisors and increases the desire to get more information with the perception that all the communication is accurate and important (Nanda, 2015).

According to Jablin (2013) downward Communication entails more of passing the information needed to juniors or subordinates’ staffs. This usually involve effective management of the tone of the message while at the same time showing proficiency in delegation to ensure the work is done successfully by the right staff. Even if the content priorities of downward communication channel have not been scholarly researched on and demonstrated, there is still some level of certainty with regards to the best strategy to downward communication. Larkin (2014) argues that senior managers should communicate directly with immediate middle level managers and supervisors in day to day operations. Then, the middle level managers need to communicate with the shop floor employees and ensure that they are constantly posted. However, if there are important issues which are urgent, senior leadership team members can communicate directly with the staffs. (Gibson & Hodgetts, 2012) state that most current organization has developed the culture of having offline discussions orally after meetings and then backing up the talk with written communication which in most cases it is the email.

On the other hand, Conrad (2013), argue that most employee’s satisfaction with down -top communication commonly referred as upward communication tends to be lower compared to satisfaction level with downward communication. Communication strategies based on downward channels are poor because it creates a fear of reprisal thus making employees feel afraid to talk their minds. Filtration of information escalated makes the same employees feel that their original ideas have been modified and this demoralizes majority in the long run. Some senior leaders have fully booked calendars thus making subordinate staff have the impression that they have not ample time to listen and respond timely. Horizontal communication involves flow of information between colleagues and peers. It is informal and does not consider the chain of command as vital to business information flow with key focus on demand style of sharing knowledge. It is majorly employed in conflicts resolutions and
sharing best practices within the industry or organization (Larkin, 2014). This channel is characterized by use of both formal and informal methods and this helps in expediting issues without delay in most cases thus preferred among the shop flow employees who may not have readily available tools or skill set to communicate formally.

According to Rymaszweska (2014) communication is driving rapid changes in lean practices across the manufacturing companies. But while most manufacturers are embracing more efficient communication, few are aggressively exploring the revolutionary possibilities that new product sources and process analytical capabilities herald. Lean management involves cross functional interactions and thus communication in manufacturing is inevitable. Internally, the departments share daily activities experiences and encourage lean management through learning and teaching of best practices where possible. Karimi (2013) argues that leadership teams should encourage spending on developing good communication systems and at the same time utilize them in implementing the best ways of working that would see organization increase productivity at the end. She adds that modes or types of communication do not really matter but what is missed by manufacturers is the sense that the people involved in the tasks are not reached and thus creating a huge gap that has seen frequent failures of lean systems during implementation. During implementation phases, feedback response between the management and staff on the production line is considered critical since if the loop is incomplete then this will result to misunderstanding. As a result of communication breakdown, many Kenyan companies have found it hard to continue introducing new ways of working to the processes and eventually lead to chaos, crisis or conflicts (Mwacharo, 2013).

According to Tucker and Singer (2015), Communication is viewed as a two-way process of reaching common understanding in which persons involved not only encode or decode (exchange) news, ideas, information and feelings but also develop and share intended purpose. Simply communication in manufacturing industries help in connecting people and harness resources easily. Jan and Scarbrough (2016) argue that communication is considered as a vital factor of lean management systems implementation. Due to poor communication strategies and corporate ignorance, most of the manufacturing find it difficult to handle change management especially when shifting from traditional legacy systems to automated systems that are highly technical and people dependent (Doolen, 2006).
The top challenge with lean implementation among Kenya firms is the fact that very few realize the need to have an effective top-down communication channels that would provide employees with clear picture of the organizational vision and mission and ensure consistency achievement of goals (Kenya Association of Manufacturers [KAM], 2016). Huge budget related on communication focuses on sales and marketing which is viewed by many Kenyan manufacturers as the key driver to profitability. The other challenge posed to manufacturing companies is dealing with change management while ensuring that resistance is minimized or eliminated since most of the employees and managers may feel uncomfortable with new ways of working. Since management overlooks communication as organization transition from legacy management systems to lean management systems, most firms miss the opportunity to fully exploit lean techniques and minimally benefits after wasting scarce resources (Jedynak, 2015).

On the other hand, some businesses which have realized the huge role that communication plays have been enthusiastic on full exploitation of it and have been able to gain maximally. According to Obure (2017) employees tend to understand the state of events running within the company through communication in ways such as having forums, daily meeting, suggestion boxes and adult–adult conversations. One of the most important drivers of lean is employees’ motivation which arises from clear communication between the staff and company. Manufacturing companies within the Kenyan market really needs motivated employees for them to thrive in a competitive environment. The main reason is that motivated staffs help the companies due to their highly productivity nature and willingness to learn, teach and improve anytime. However, the process of motivating the employees within the organization may turn out to be complex and end up frustrating even the initiators (Karimi, 2013).

Lean management and employee motivation has proved to be interlinked especially where people drive the implemented program. In this case, it is vital for any leader to understand the needs of his or her workforce and their main concerns, and consequently, use the best communication approach fit each unique situation. Various motivational theories in strategic management clearly indicate that effective communication helps management achieve their targets while concurrently satisfying both the consumer and employees (Asher & Rijit, 2012).
According to Lean Enterprise Institute (2017), the foundation of continuous improvement tools such as Kaizen, Toyota production system, lean sigma, and Kanban among others is determined by effectiveness of communication. Studies done by Toyota Kenya academy revealed that lean practices are easily adopted where managers communicate openly and regularly since employees feel to be involved and inspired by the approach. However, Njenga (2013) hesitates that very few manufacturing companies have taken the challenge to understand their employees through direct or indirect communication channels set up in the organizations. The greatest fear is that none seems to improve on this and thus most of lean programs fail drastically during implementation since lack of effective communication does not lead to employee empowerment. Karimi (2013) argues that Kenyan manufacturing companies can give employees authority to speak up and provide ready now solutions to process challenges and contribute extensively to decision making forums.

### 2.3.2 Diagonal Communication

Typical manufacturing company implementing lean management should opt cross functional team work for all staff rather than working in silos. Even though the GSK production system has several defined standards which must be adhered to, leaders need to create room for brainstorming and communicating during launching of various improvement initiatives. Njenga (2013) emphasizes there exists a gap that need both vertical and horizontal communication which affect the success rate of implementing lean manufacturing methods. Apart from improving process flow and economic benefits, lean also helps in streamlining the communications within the manufacturing plants. According to Njoroje, 2017 GlaxoSmithKline has double shifts which carry different types of brands and personnel. In the event of failure in communication, especially when shifting from one product to another, quality and production conflicts begin since the product contamination probability is high while production volume metrics suffer because of high numbers of batch rejection. This can be prevented by establishing broad pathways of communication within the pharmaceutical plant in Kenya.

Management at all levels in Kenyan perspective need to realize how important it is to ensure that there exists proper communication channels and utilization by the company to assure that the employees (who mainly participate in lean implementation) are fully aware of the coming
change and are less likely to resist it (Schuller, Kash, Edwardson, & Gamm, 2013). However, recent survey in Kenya Industries conducted by association of manufacturers revealed that many of the companies having large numbers of workforce found it difficult communicating at ago through personal interactive channels such a tier meetings.

Schuller et al., 2013 argue that even if workers would have emails which are used for communication some may not visit their desktops or laptops since they are constantly engaged on the production lines thus rendering the method slightly ineffective when instant relay and feedback is needed. To curb the effects of communication breakdown towards lean principles implementation, management should focus on helping. GPS suggests that there should be accountability and performance management meetings that can facilitate communication. The Tiered Accountability Process (TAP) helps in sensitization of lean and reducing skepticism and resistance by making employees full aware of the benefits to them and the organization Value stream leads should also ensure that Simple improvement cycles such as Plan Do Check Act (PDCA) and Investigate, Design, Execute, Adjust (IDEA) are communicated on wall posters as visual management to remind workers of what is needed of them (GPS, 2014). According to GPS, leaders should use communication to develop their understanding of how the 4M’s namely man, material, methods and measurements are managed in the current state, resulting in the current level of performance.

Figure 2.1: GSK Production System Standards
Source: GSK (2017)
Figure 2.2 Example of a Simple 4M Model and PDCA  
Source: GSK (2017)

Toyota production system advocates communication as a prerequisite to successful change helping employees’ mindset and behaviors align to lean management. According Hamer, (2017) the accountability meeting process formally assesses actual performance versus target to confirm the priority problems and how to manage them to ensure performance is returned to target. In GSK, daily accountability is the vehicle for interpreting the observations recorded on the visual boards, converting them into assignments for action, and following up to see that assignments are completed. These accountability meetings follow up on the stories revealed by the visual controls to ensure Assessment of abnormality. This enables leaders ensure assignment for corrective action and/or improvement and accountability for having completed the previous day’s assignments.

According to Chay (2014) all meetings must have a common purpose in order for communication to be effective in lean implementation. The meetings structure should identify risks, issues, understand gaps and targets and provide a clear understanding of what actions will be created to close the gaps. Moreover, leaders should explain to their team on best possible escalation procedures in the event challenges are experienced in the firm.
To make change stick, leaders need to be skilled in leading people through change and increasing engagement. To do these leaders should identify opportunities for colleagues to participate in the journey while ensuring that colleague’s concerns are addressed and respond skillfully to typical reactions to change.

**Figure 2.3: TAP - Tiered Accountability Process**


**Figure 2.4: Communication Commitment Curve**

Source: Toyota (2016).
2.4 Effects of Financial Capability on Lean Management Systems Implementation

One of the critical factors that determine the success for lean implementation is the finance aspect of an organization. Multinational Corporation embracing lean management systems allocates huge budgets that are specifically meant to support the program. These lean initiatives need some significant investment of the firm in creating sufficient resources (Mann, 2012). According to Brun (2011) apart from setting up financial muscles in order to cultivate and sustain culture, companies need it to purchase training materials for employees, seeking external consultation advice, statistical software licensing purchase, reward and recognition platforms among others. One of the main advantages of having financial capability well established is enabling successful implementation of lean implementation through reward and compensation (Shah & Linderman, 2011) and infrastructure (Pedersen & Huniche, 2011).

2.4.1 Function Design

In today’s business models, the role of finance department, its key contribution to organizational success through lean management need scrutiny. Knowing on how organizations would enhance the performance contribution has been a bone of contention for many years but upcoming manufacturing companies have made it more urgent because finance functions are implicated in both failures and success as stipulated by financial crises (Christensen, 2013). Most companies in Americas and Europe which encourage free market and limited regulation has been characterized by increasingly extensive acceptance of the call for an influential finance department or Chief Finance Officer (CFO) focused on lean management (Payne, 2014). According to Miller (2012) this has been attributed by the growing perception that financial information and measurement are essential in implementing and running lean systems aimed at improving the business output, shareholder value, operational cash flow and capital expenditures (Roberts, 2013).

The culture of globalization of capital flows with lenders, investors and regulators with an expectation of dealing with professional financial analysts and teams even in complex models has increasingly contributed to lean management implementation. Lean practices have significantly played important role and simplified sophisticated financial engineering structures in learning and continuously improving organizations. Scandals reported from
previous organizations implementing Lean management systems has forced global governance and regulatory bodies to emphasize on need to develop clearly defined job description for the role of finance. Finkelstein (2014) argues that manufacturing improvement rely on the ability of the finance, economics and accounting experts to attract and develop well talented employees who have best skill set and business acumen to take up on leadership roles within the companies.

Morgan (2012) insists that as part of strategy development, finance team need to take full responsibility in ensuring there is swift decision making and organizational transformation when implementing lean management systems. But the key question that remains unanswered in least developed and third world countries whose manufacturing strategies are geared towards lean systems is whether there is vigorous evidence on role of finance. Some of these companies have no finance function and may not view the role of finance director as prominent thus ignoring this factor.

**2.4.2 Financial Stewardship and Infrastructure**

According to Ramesh and Kodali (2012) organizations planning to implement lean practices should critically factors in financials in the project design phase. Contingency funds are also vital to lean implementation if amount budgeted for get exhausted during the adoption and maturity phases. In manufacturing companies, finances cover the avenues which other useful provisions such as leadership and management team remunerations can be made (Gollan, Kalfa, Agarwal, Green, & Randhawa, 2014). Recent studies by lean enterprises institute clearly indicates that manufacturing companies all over the worlds are financially hopeless and harbor inadequate financing arrangements. Inadequate financing among manufacturing companies is thus a major barrier to the introduction and subsequent successful implementation of lean management (Vinodh & Anesh, 2011).

The top challenge of lean manufacturing practices in Kenyan Industry includes lack of easily accessible productivity improvement initiative services such as trainings of employees on how to effectively utilize the lean techniques as well as aid in acquiring the implementation ideas (Mwacharo, 2013). In some instances, manufacturing companies halt production process to create more time for employees to get involved and learn more on the new lean practices being
adopted by the business. The fact that output is reduced requires the firms to hugely invest in finances that would keep maintaining the company, sustain its operations while satisfying its workforce demands in terms of pay (Nicholas, 2014).

Gollan et al., 2014 argues that it is important for the senior management within an organization to make sure that adequate financial resources are available for the successful execution of lean practices. Research studies organized by Kenya Association of Manufacturers to investigate on possible barrier to lean found out that the availability of finances for successful adoption and implementation of lean management systems is a vital factor especially for SMEs. Despite paying attention to other elements, the reports indicated that financial capability has always been a scapegoat among Kenyan manufacturing companies with the excuse of cost cutting leaning on lean practices as the best alternative. However, according to world bank reports conducted by McKenzie and Puerto in 2017, there seems to be contradictions since the study mentions that most Kenyan companies face little difficult with finances for conducting consultancy, training and other minor lean implementation facilitation services. However, the report argues that the companies lack financial capabilities when it comes to huge investments especially when shifting from traditional systems to lean. Big investments create uncertainty in companies especially if the funds were not budgeted for thus developing barriers to lean management.

In a case done by Directorate of Industrial training for Kenyan firms’ financial impact on lean improvements initiatives, it was identified that out of 30 companies studied 20 of them did not see the importance of including lean financial during budgeting (DOSH, 2014). In addition, the report highlighted that even the government support was limited such that none of the companies had interest in requesting for financial support from the same and thus most businesses opt for using the traditional legacy management practices rather than implementing a cost associated program whose benefits may never be realized. According to Njoroge (2017) Multi-National Corporations (MNCs) take the lead in implementing process and working improvement management systems due to the financial capability and availability of adequate contingency funds when needed. In GSK alone, the company had fully funded the GPS adoption, implementation, maturity and sustaining phases. The cost incurred initially can be high but once lean is implemented in the plant, the profitability increases gradually due to high
return on investment. Lean focus on using cost when and when needed to provide a sustainable solution that will prevent future recurrence of same challenges of increased wastes (Toyota, 2017).

Brun (2011) argues that firms would prefer blaming the scarcity of financial resources when lean systems signals faults so as they can continue firefighting and tackle day-to–day operations as they are norm. Broadly speaking it can be agreed that financial view of a company has great impact on lean implementation among manufacturing companies thus calling the need of planning and budgetary controls. Previous studies have research superficially on these factors but they have demonstrated that there is a link between financial capability and lean techniques implementation within the industry implying that the role of financial strength is vital for the success of lean implementation journey. Further studies emphasize that with better financial capabilities, quality of goods improved and new ideas are always generated with respect to continuous improvement. However, according to Quesada and Madrigal (2013) there exists mixed reaction on effects of financial capability on lean management and thus none of the scholars have concrete research on this factor.

2.5 Effects of Skills and Expertise on Lean Management Systems Implementation

Considering the high degree of product quality even after implement value adding initiatives that are meant to benefit both the company stakeholders and external parties such as the customers through profit maximization and price reduction respectively, employees play big roles in delivering trusted brands to the people at the end of the supply chain (Marin-Garcia & Poveda, 2010). According to Jeyaraman and Teo (2011) the organizations always need to recruit and retain high skilled personnel for the sake of sustainability when designing and implementing lean initiatives. Hence manufacturing companies with a thought of lean needs to pay attention on skills and training capability for staff to achieve their set goals of lean management implementation (Quesada & Madrigal, 2013). Asher and Rijit (2012) argue that manufacturing industries all over the world has been struggling with three dimensions pertaining to expertise, training and skills. These include employee training, employee sufficiency and employee learning.
As discussed earlier on financial capability of the manufacturing, there seems to be a ripple down to other critical success factors on lean management systems implementation. Financial incapacitation of the organization hampers skills and expertise. The future of manufacturing industries is highly dependent on use of intellectual expertise and ability to continuously innovate the business and differentiate its products (Hanafizadeh, Gholami, Dadbin, & Standage, 2010). Manufacturing companies in least developed countries and third world countries has proved to be lagging due to unavailability of high skilled personnel who foster the ideology of capability building. The basic core of manufacturing improvement in multinational companies was found to have been derailed by lack of training and having ready now expertise to execute and develop other employees upon projects completion (Allen & Wigglesworth, 2009). Due to the increased level of technicality of innovative and technological processes, organizations need to quickly respond by adding more resources to training functions. According to Brun (2011), low level staff skills are not able to harness the need for technological improvement.

The top challenge with change is the ability to build capability among Kenyan manufacturing companies. Some of the organizations lack clear strategies to spearhead change management through skill set acquired by the employees (Were, Manufacturing in Kenya:Features, Challenges and opportunities, 2016). According to Toyota Institute, in order for leaders to build capability through change especially via lean principles, they should focus on increasing their influence, building resilience and walking the talk. TPS advocates for increasing the influence through fostering understanding and commitment. According to World Bank (2016b) until an organization reaches the tipping point, leading people through change aimed at building capability is difficult. To build and maintain expertise on special elements within an organization, individuals need to feel supported through strong relationships with like-minded individuals who encourage them to stay true to their mission In Kenya alone, manufacturing companies proved to have failed in various instances when deploying lean implementation practices due to overdependence on expatriates and ;lack of committed resources for training the employees who were directly involved with the newly implemented lean systems. (Ministry of Industry, Trade and Cooperatives, 2016). KAM, (2016) argues that lean management is adversely affected by levels of skills and expertise acquired by both the leaders and staffs. Thus, in addition manufacturing companies would walk the talk when the
following supports the lean change; the way leaders spend their time, the questions leaders ask, the conversations leaders provoke, the relationships leaders promote, the things leaders pay attention to, ensuring that the whole system supports new ways of working and the investment decisions leaders make (Kazmierski, 2015).

Odaba (2014) indicated that the traditional conventional mass production still dominates the Kenyan manufacturing industry thus very few companies seem to have keen interest to try out lean management systems. The Kenyan companies have embraced the mass production whose origin was Ford Motors, USA purposely aimed to attain high volumes always. It needs highly skilled human resources during operation of expensive special tasks only. On the other hand, Eli (2011) argues that today the manufacturing companies are chasing technology and have over time kept on overhauling their ways of working through implementation of lean practices that would help in achieving higher outputs with minimized waste. Even though, these companies lacked expertise and skills majority of them embraced the Toyota Production System and launched initiatives such as lean sigma, kaizen, khan ban and 5s among others with the aim of maximizing the leanness levels. However, the TPS was highly characterized by automated and flexible manufacturing systems which had the capability to achieve high volumes and increased varieties of products. According to Gesimba, Langat, Liu, and Wolukau (2012) operating a company which is implementing lean manufacturing system requires more multi-skilled employees at all levels of the functions unlike mass manufacturing systems.

The role of the skills and expertise in lean manufacturing is critical in ensuring that the manufacturing process on shift is well lead, adheres to standards and that the output meets the needs of the business. The leader of a small team with the ability to influence the level of engagement and levels of capability will determine the success of the area in safety, quality, output and cost (GPS, 2014). For successful lean adoption and implementation the managers needs to be inspiring looking for continuous improvement and ensuring that the whole team are involved in that journey. Addition to the skills, managers also require the ability to understand, to a sufficient level, the technical aspects of the area that they are responsible for to enable effective problem solving while also understanding when process or technical issues may need to be escalated for further support. In manufacturing of products, it should be clearly
known that harnessing the desire to drive for the best performance while maintaining high standards is paramount. (Wong, Ignatius, & Soh, 2014).

Limited capability among Kenyan employees working at different levels has affected the return on investment for key lean systems and according to Bititci (2011) the market has a gap in terms of expertise in people leadership, problem solving, performance management and process management.

2.5.1 Coaching and Mentoring Skills

Organizations implementing lean should prioritize on full people leadership for a team of staff working within a production environment (Vinodh & Anesh, 2011). Manufacturing firms’ strategies need to suffice the aspect of leading and coaching of teams on shop floor to ensure adherence to standards for safety, quality, compliance and output. Lean management literally advocated for Working with the team to continuously improve the capability of both the individuals and the overall team to increase their performance towards targets (Aminuddin, Garza-Reyes, Kumar, Antony, & Rocha, 2016). According to Lean Institute, one of the best approaches of building skills and capability among the employees in Kenyan industries is through engaging and inspiring staff in the future targets by sharing the vision, area objectives and helping staff to understand the value add of the work that they are responsible for by bringing happiness to customers at the end of the Supply chain for their respective work area.

Aminuddin et al., 2016 argues that learning organizations that are keen on training and building capabilities should develop methods that ensure staffs have personal development plans set at the beginning of the year and encourage management to regularly keep on checking the progress. In addition, lean management is dynamics thus employees need to identify the right trainings at the right time and share the learning’s with other functions for knowledge building. However, Laureani and Antony (2016) emphasizes the need of management taking up the responsibility of setting up expectations on individuals’ behavior and performance and ensuring that regular feedback is provided both by formal routes but also in regular Gemba sessions. This helps in developing skills and getting in constant touch with the learners thus having the opportunity to identify their weakness and strengths.
By introducing companies’ training schools such as the Toyota academy, organization get advantage of knowing workforce challenges and closing the gaps before their competitors are on it (Toyota, 2017). According to Toyota Kaizen practitioners, the secret that they acknowledged during TPS implementation was coaching and providing development to improve the behavior/performance of individuals and the team to ensure that all expectations were met. This included holding people to account for the duties that they are responsible. Aboelmaged (2011) sensitizes that one of mistakes done by big manufacturing firms in less developed countries was failure to identify key talent and capabilities and input to succession planning process to ensure plant sustainability in the event of high turnover.

2.5.2 Problem Solving and Performance Management Skills

In highly competitive environment, manufacturing companies aim at minimizing loss of time due to equipment failures or employees’ injuries among others. Organization in maturity stage picks leaders within the business area such that they are responsible for setting target conditions, and delivering against them, to achieve improvements in performance to meet future business needs. The purpose of capability building in manufacturing processes is to ensure that lean systems have capable and confident operators who will consistently deliver outstanding products and maximize profits (GPS, 2014).

2.5.3 Process Management Capability

According to Antony and Kumar (2012) manufacturing firms lacked consistence in developing training matrix and roadmaps that would ensure successful implementation of lean having the right expertise on hand brings the feeling of preparedness and encourages team members to innovate the processes they are dealing with. Technical skills play a big role in ensuring lean practices sustainability and governance of the processes during the day and night shifts in a manufacturing plant. Moreover, the shop floor and supervisors get exposed to new software’s that need active engagement and refresher training upon each upgrade (Zu & Fredendall, 2010).
2.6 Effects of Organizational Culture on Lean Management Systems Implementation

Briody and Trotter (2012) explain organizational culture as the values and behaviors that result to the distinctive social and psychological environment of a company. The company’s expectations, philosophy, experiences and values that hold it together are always incorporated. According to Conceição and Altman (2011) organizational culture is totally based on customs, attitudes, beliefs and written and unwritten policies that have been created over time and are accepted to be organized. Shook (2010) corporate culture can be shown by the ways the company conducts its operations, handles its staffs, consumers and the wider community. In addition, it can be manifested through the way freedom is expressed in decision making, employee expression and suggestion of new ideas. Moeuf, Tamayo, Lamouri, Pellerin, and Lelievre (2016) suggests that employee commitment towards company objectives and the way power is exercised and information flows through the hierarchy influences the organizational culture. In manufacturing companies, culture helps in productivity and performance and provides guidelines on product delivery across the market. Corporate culture is one group of person’s behavior and attitude (Noori, 2015).

2.6.1 Openness and Collaboration

Organization get it right first time when they embrace a culture that advocates for openness in terms of opinion and knowledge sharing experiences thus helping in improving the continuous improvement frameworks such as lean management. Partners, shareholders, leaders, employees and customers need to exhibit high levels of collaboration at different stages of the supply chain from the time raw material is shipped, manufactured, tested and sold to gain profits. Marodin and Saurin (2015) argue that people’s way of thinking and acting is guided and changed by lean cultures that support sincerity and team work effort. By this, in lean culture employees are expected to change their behaviors, emotions and political process. Gareth (2014) noted that organizations that ignored to stem up culture before lean implementation experience difficulties during the adoption and implementation phases and some ended up closing the shops. The commitment shown by manufacturing companies to develop supportive culture which is deemed as an essential platform for the implementation of lean management systems is highly encouraged. Waring & Bishop (2010) agreed that company’s culture affects lean principles since it affects individuals’ behaviors. Thus,
management should consider organizational culture as a key factor that determines the extent to which lean programs can be successfully implemented. The culture adopted by employees determines whether a process or an idea is approved or rejected. According to Noori (2015) organizational culture can be summarized as the belief system that staffs within the organization share, including traditions, ways of working, stories and acceptable techniques to achieve objectives set.

By adoption of culture it is important for manufacturing companies to understand that the whole process is cumulative and evolve over time as persons share their experiences, accommodate themselves to similar conditions and deal with their external and internal social environment (Radnor, 2011). A closer look at previous studies done on organizational culture by scholars, there seems to exist a gap since most of them focuses on understanding culture and defining it, but does not explore the relationship between culture and lean management. Furthermore, many companies would prefer collaboration through team work efforts only when there are special occasions and at the same time view openness as a loophole to management critique. This has resulted to isolation and creation of silos with secrecy that cause inefficiency (Smollan, 2013). Moeuf et al., 2016 emphasizes on the importance of shared values which are essential to improving production efficiency because they help management and all staff members choose the right behaviors they will practice. Moreover, organizational culture helps reducing uncertainty and encourages interaction between employees thus giving the organization a distinct identity. Crandall and Crandall (2011) noticed that socialization was one of the culture related aspects that hindered the adoption process.

Socialization is the process that involves explaining things or concepts with aim of making them aware of the way things are done and what expectations are realized in terms of performance. Employees who are poorly socialized tend to resist lean management and eventually deny involvement into continuous improvements frameworks (Gareth, 2014). Naor, Linderman, & Schroeder (2010) show the multidimensional perspective of organization culture and argue that multiple companies developed multiple categorizations to provide insights into their lean systems. The most prioritized effort is competitive values which greatly determine the success of lean management and eventual success of management. Radnor
(2011) explains that researchers have not developed sufficient measures for assessing culture and companies’ effectiveness.

According to Bhasin (2011) most of the manufacturing companies fail in lean implementation as a result of poor adjustments of organizational culture as environment factors changes and less involvement in building up the right employee attitude. He further mentions that companies need to foster collaboration and team work spirit and develop the culture of supporting each other especially when coming up with new ideas or carrying out problem solving for failed processes. This in turn, helps in achieving and sustaining successful lean management systems. Overall, Shook (2010), insists that a culture of openness creates respects and builds trusts that help in high receptivity of new ideas and fast tracks continuous improvement initiatives that are implemented on manufacturing plants while increasing the management confidence level towards leading the team achieve its goals.

Despite having little research assessing the impact of organization culture on lean practices, Briody and Trotter (2012) insist on the need to create a supportive culture since it creates the base for lean implementation in manufacturing companies. In Kenya, most MNCs have considered investing in culture while other local manufacturing companies reflected in their culture the shareholders, company owners and were facing constraints in implementing lean (Chilla, Kibet, & Musiega, 2014). According to GPS practitioner in GSK Kenya, it was noted that very few companies within the Kenyan Industries were willing to add resources that would build the organization culture. Some of the management per a survey conducted by KAM (2016) did not see the correlation between productivity and behaviors tagged on the employees. Even with well-built in organizational culture, the practitioners felt that GSK shop floor employees needed more exposure into programs that would shape their attitudes towards the new lean systems as most of them had previously participated in the last process improvement system that had dramatically failed.

The manufacturing industry like any other industries in Kenya is characterized with high competition and vibrant business approaches in the face of globalization which currently has exposed consumers to highly differentiated commodities and services. Wangui (2014) and other authors argues that organizational culture needs to be helpful, rare, unique and not substitutable” to serve a basis of sustained competitive advantage. Bozdogan (2010) identified
that many of the factors earlier identified to lead manufacturing companies’ competitive advantage were drastically becoming insignificant. This includes factors such as technological innovation, economies of scale, financial capability among others. This is because of constant de-regulation by industrial authorities, reduced products life cycles and increasing demand for companies to swiftly become flexible and respond to the turbulent environment. Thus, this clearly calls for close analysis of organizational culture and determine its impact on lean management practices during implementation period.

2.6.2 Receptivity and Sharing

Biwott (2013) insists on the importance of involving key stakeholders such as investors and senior leadership team when to develop strategic framework for creating the culture of the company. People receptivity of new ways of working and sharing capability greatly influences the impact new ways of working would have on an existing legacy system of manufacturing and leadership at large. Change of mindset which always goes hand in hand with culture gives employees an objective in their operational tasks and has the potential to shift their attitude. This in turn allows employees to thing widely and differently and become more willing to participate in process improvement cycles while the management makes the control bureaucratic hence making it difficult to change sometimes. (Auwor, 2015).

According to Muthoni (2012) corporate culture can be viewed in terms of mission, receptivity, adaptability, bureaucratic and entrepreneurial. The researcher explains that adaptability and receptivity culture is naturally flexible in approach to the lean management process in meeting the demands of the external market environment. On the other hand, bureaucratic culture is focused around the rituals performed by leaders in the business that leads to sustainable continuous improvement process (Nderitu & Nyaoga, 2013). Mission culture insists that the presence of innovative leaders with sharing capacity in an organization plays a key role in the lean process as they provide direction and resilience to the improvement process (Odaba, 2014). According to Salama (2011) Entrepreneurial culture is majorly based on a personality that controls the pace of employment and motivation perspective in an organization. Weak cultures mostly exhibited by autocratic leaders has spearheaded the fall of lean implementation in Kenya as most of the employees do no share beliefs, ideas and commonalities that would enable employees achieve the company’s objectives without struggling (Wangui, 2014).
As indicated by Leonard (2015) organization culture significantly determines the success of lean management implementation through influencing the way the company manages issues and inquiries, individual attitudes to improvement based changes, the way workers collaborate with one another, the way the company communicates internally and externally and individuals’ commitment to objectives. At this instance, employee receptivity level determines the success or failure rate of implementing new systems. The right culture will yield benefit contributed by lean real time (LeanKit, 2017). Therefore, based on the literature review companies should develop acumen culture webs that would see easy transition of culture changes and gradual improvement of processes within the manufacturing plants through use of lean tools such as GPS, Kaizen and Kanban among others. From this chapter, we can see clearly that organizational culture is not just an important aspect of an organization; it is the essential driver of advanced business performance. It is the core of what the business is really like, what it focuses on, how it operates, and how it relates with employees, customers and shareholders.
2.7 Chapter Summary

This chapter has used journals articles and materials done by previous scholars to examine the; effect of leadership and management on lean management systems, effects of communication on lean management systems, effects of financial capability on lean management systems, impact of skills and expertise on lean management systems and the impact of organizational culture on lean management systems. Chapter three will introduce the methodology used in carrying out the research, state the design, population, sample size and sampling design, the data collection technique used, and as well as the method and the data analysis technique used in the study.
CHAPTER THREE

3.0 RESEARCH METHODOLOGY

3.1 Introduction
This chapter outlines the methodology to be used in the study including the design, the population of the study, sample size, sample frame, data collection methods, research procedures and data analysis and presentation of the research findings.

3.2 Research Design
According to Coopers and Schindler (2014) research design is the blueprint or the plan for collection, measurement and analysis of data. The study adopted qualitative case study design. This was helpful in establishing the pertinent facts as intended by the researcher in great depth in hopes to reveal universal truths on factors that affects the implementation process of lean management systems. This research design was best suited for this study as it involved collection and analysis of textual data. Case study design is the intensive assessment of a phenomena, situation or instance (Cooper & Schindler, 2014). Yin (2013) argued that case study design is an experimental examination that investigates a current occurrence within its real-life situation; when the limits between the context under study and phenomenon are not easily predictable or obvious; and in which several sources of evidences are used. In a nutshell, Yin argument is that case study method describes an intervention or phenomenon and the real-life context in which it occurred.

The process of relating an empirical test to affirm or refute a knowledge claim involves making decisions on the type of data required, where that data will be found, techniques used during data collection, analysis of the collected data and interpretation. This was found to be appropriate for this study as in enabled in-depth description and understanding of various factors affecting implementation of lean management in the manufacturing industry in Kenya. This case study was a single case basically focusing on the lean management system at GlaxoSmithKline Kenya which manufactures pharmaceutical drugs and consumer goods. Cross sectional study design was used to provide a ‘snap shot’ of the results and the
characteristics since this was a single-time research. This design was convenient for the study as it aided the inquiry and in-depth synopsis and understanding of the critical success factors.

### 3.3 Population and Sampling Design

#### 3.3.1 Population
Coopers and Schindler (2014) postulate that a population is the total collection of elements about which we wish to make some references. It is basically the larger cluster from which individuals are chosen to participate in a study. The target population of this study encompassed the GSK staff working at the manufacturing plant in Kenya. The total number of production employees directly involved with lean management system referred to as the GSK Production System is about ninety-seven assisted by about a hundred and four contingency staff on daily operations. The study was entirely based on the GPS implementation status as at April 2017. Due to job rotation and business development programs such as restructuring the number of employees in the factory keeps on varying. The list of the production employees using GPS basics was obtained from the human resources office in GSK Kenya.

#### 3.3.2 Sampling Design
This section describes the sampling frame and technique to be used for the study and the actual sample size to be drawn from the target population. According to Bell (1999), a sample is a subset of the population which represents the characteristics of the population or a portion of the population selected for analysis.

#### 3.3.2.1 Sampling Frame
To have succeeded in the field survey, the sampling frame was used in the determination of the sampling units. Cooper and Schindler (2014) argues that a sampling frame is a list of elements from which sample is drawn and is closely related to the population. The target population of this study comprised of the individual staff working at the manufacturing plant based in Likoni road at Industrial area Nairobi. The sampling frame derived respondents from the following departments; production, engineering, quality, environmental health and safety, procurement, logistics, technical, Site GPS, human resources and finance. This list of departments was obtained from the company’s strategy lead, while list of employees was
obtained from the human resources officer. In addition, a list of key above site executive leaders supporting GPS will be obtained from the GlaxoSmithKline GPS Resources.

3.3.2.2 Sampling Technique
Molenberghs (2013) explains sampling techniques as the process of selecting some elements from a population to represent that population. The sampling technique for adopted in this study was a non-probability sampling technique since the procedure involved targeted the most conveniently available group within the company.

With the population size of two hundred and seven, Krejcie and Morgan concept was adopted to help in the determination of the actual sample size. According to Cooper and Schindler (2014) census method involves systematic obtaining and recording of information about or from the characteristics or participants of a given population. Getting the actual sample size was more economical compared to census method that would have taken whole population due to low number of target group thus reducing the expenses of research.

3.3.2.3 Sample Size
In any research, selected sample enables the researcher to make a generalization about a given population. A sample is a subset of a population (Blumberg, 2014). This is however useful only if it accurately represents the larger population. Barbie (2010) argues that a sample size refers to the actual respondents the researcher aims to interview. To ascertain that the selected sample is representative of a given population, a researcher need to clearly define the characteristics of the population, establish the required sample size, and choose the appropriate method for selecting members from the population. For this study, the sample size was selected using the Krejcie and Morgan approach, rather than the rule of thumb for determining the sample size i.e. where a given population is below a certain point (N<100), the population size and sample size are equivalent.

The affirmed sample determination in this study was through Krejcie and Morgan formula illustrated below.

\[
s = \frac{X^2N^*P^*(1-P)}{(ME^2(N-1) + (X^2P^*(1-P))}
\]
Where:

\( s = \) Sample size

\( X^2 = \) Chi-Square for the specified confidence level (3.841) at 1 degree level of freedom

\( N = \) Population Size

\( P = \) Population proportion (assumed to be .50 since this would provide the maximum sample size)

\( ME = \) desired margin of Error (Expressed as a proportion). Also, denoted as \( d^2 \), is the degree of accuracy (.05)

Substituting \( ME^2 \) with \( d^2 \); Krejcie and Morgan Formula changes to:

\[
s = X^2NP \left(1 - \frac{1}{d^2(N-1)}\right) + X^2P \left(1 - \frac{1}{d^2}\right)
\]

Substituting for the values as given in Krejcie and Morgan, (1970) recommended in the above research technique section, given a population, \( N = 201 \):

\[
s = \frac{3.841 \times 201 \times 0.50 \times (1 - 0.50)}{0.052 \times (201 - 1) + 3.841 \times 0.5 \times (1 - 0.5)}
\]

\( s = 132 \)

Using the Krejcie and Morgan approach from a population of 201, 132 respondents was the sample size for this research project; 132 respondents represented 80% of the target population. The respondents target was distributed as shown in the Table 3.1 below.

**Table 3.1 Distribution of Respondents**

<table>
<thead>
<tr>
<th>Department</th>
<th>Population, N</th>
<th>% Sample Size</th>
<th>Sample size, s</th>
</tr>
</thead>
<tbody>
<tr>
<td>Production</td>
<td>96</td>
<td>68</td>
<td>65</td>
</tr>
<tr>
<td>Engineering</td>
<td>38</td>
<td>61</td>
<td>23</td>
</tr>
<tr>
<td>Logistics</td>
<td>21</td>
<td>67</td>
<td>14</td>
</tr>
<tr>
<td>Quality</td>
<td>28</td>
<td>61</td>
<td>17</td>
</tr>
<tr>
<td>Procurement</td>
<td>4</td>
<td>50</td>
<td>2</td>
</tr>
<tr>
<td>Site GPS</td>
<td>3</td>
<td>67</td>
<td>2</td>
</tr>
<tr>
<td>Technical</td>
<td>4</td>
<td>100</td>
<td>4</td>
</tr>
<tr>
<td>Finance</td>
<td>3</td>
<td>100</td>
<td>3</td>
</tr>
<tr>
<td>Human Resources</td>
<td>4</td>
<td>50</td>
<td>2</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>201</strong></td>
<td><strong>80</strong></td>
<td><strong>132</strong></td>
</tr>
</tbody>
</table>
3.4 Data Collection Method

Data collection instrument used by the researcher, in this study was a questionnaire which was formulated and organized based on the research questions to ensure relevance to the research problem. Data collection method is an essential stage within research methodology since it discovers answers related to the research questions. Forced vs. unforced categorized under Likert scales were used. This was represented using both balanced and imbalanced rating five point scales. The Level point scale was helpful in the elimination of biasness or the discrimination of factors under study by the staff driving the system from skewing heavily on one end while on the other end Likert scale alienated the possible causes for guessing and lose of cooperation and honesty from the respondents.

Primary data was collected using structured questionnaires through an online channel and print outs. The questionnaires focused on gathering employees’ perception and organizational mindset towards the GSK Production System (GPS). The primary data was obtained through the questionnaires issued to respondents.

According to Lietz (2010) a questionnaire is a set or sequence of questions developed to obtain information upon an area of interest, from an informant. Each participant was requested to answer a similar set of questions in a preset order. Each section comprised of a balanced structured close-ended question. The first section inquired about personal details which was useful in presenting the respondent’s demographics. The second section consisted of questions concerning effects of leadership and management on lean management Implementation. The third section captured questions related to effects of communication on lean implementation. The fourth section considered the impacts of finances on lean management implementation. Section five inquired on the effects of skills and expertise on lean implementation while the last section six focused on the effects of organizational culture on lean management system implementation. Secondary data on actual performance as per previous regional assessments by expertise since 2016 will be collected.
3.5 Research Procedures
The questionnaires were formulated and crafted by the researcher in accordance to the objectives of the study. Before the actual data collection process, the questionnaires were tested for validity and reliability. Reliability of the questionnaire was performed through piloting ten questionnaires to randomly selected staffs within the manufacturing plant and whose responses were excluded in the final study sample. All the selected respondents were given an equal chance of getting the structured questionnaire. Validity was tested through presenting the questionnaires to the supervisor to verify whether the questions effectively captured the objectives of the project.

The researcher sought consent from the university prior commencement of the field survey exercise. The researcher requested for a formal permission from the management of the manufacturing company, GSK Kenya, to carry out the research. The researcher collected the data personally by adopting the ‘drop and pick approach’ throughout the study period. In situations where the respondents were slow in responding to the questionnaires, the researcher made prompt follow ups to ensure the questionnaires were dully answered.

3.6 Data Analysis Methods
According to Cooper and Schindler (2014) data analysis is the process of editing and reducing accumulated data to a manageable size, developing summaries, looking for patterns and using statistical techniques. Data collected was first reviewed to detect any possible errors and omissions. In the instances where the provided data was deemed incomplete or errors noted, the respondents were re-contacted over the phone for further clarification. The levels of measurement that were deemed suitable for this case study were ordinal for demographic data and scale/interval intervals for the main research questions in the structured format with a quantitative scale. Data was then analyzed using statistical package for social sciences (SPSS) version 22 computer software by finding out the key correlation between various dimensions/parameters of critical success factors.

Data collected was analyzed through SPSS software version 22, using descriptive and inferential statistics. Descriptive statistical analysis included the measures of central tendency and spread or dispersion. Measures of central tendency provided the information on the closeness of the data collected to the center of the distribution, for each continuous variable.
This includes mean, mode and median. Measures of spread helping in evaluating the overall data spread from the lowest to the highest. This was computed using range, variance and standard deviation. Inferential statistical analysis included confidence interval and hypothesis testing that helped in making valid conclusions derived from the field data. Confidence interval was used to give a range of values for an unidentified dimension/parameter of the employee’s population via measuring a statistical sample.

Reliability of the data was spearheaded by the development of robust and well-structured questionnaires to the extent that if it were to be subjected to a different respondent the research would end up getting almost similar output. In this project, Cronbach’s Alpha was computed to test the reliability of the questionnaires. According to Bryman and Bell (2011) all reliability tests carried out through the Cronbach’s Alpha are subjected to a rule of thumb that states that the values of the factors in the study should not be lower than 0.7. Validity of the data and outcome was considered. Accuracy levels determined the credibility, sense and authenticity of research thus the questionnaires were structured to cover all the five objectives in detail. All the five factors were placed on a five-point scale to ensure it remains objective and support the analysis process. After determining the correlations among different factors and interpreting them statistically, factor analysis was conducted to reduce the number of parameters to a small number. In this case, factor analysis helped in grouping parameters with similar characteristics together.

3.7 Chapter Summary

This chapter included the research design and the sample size and sampling design that was used. It also outlines the data collection method, which will be the primary data, and the data analysis techniques used. The next chapter analyzes, presents orderly and interprets all the gaps of the study in an approachable manner as guided by the objectives. The chapter used only data collected during the study.
CHAPTER FOUR

4.0 RESULTS AND FINDINGS

4.1 Introduction

This section of the study covers data presentation and analysis. The data obtained from the field survey, is computed and outcome presented using tables. The main purpose of this study was to assess the critical success factors that influence the implementation of lean management in manufacturing companies. To help in exploring this topic, five critical factors believed to drive lean management notably; leadership & management, communication, financial capability, skills & expertise and organization culture formed the main components of the study.

4.2 Response Rate

The unit of analysis which was the case study in this project was the GlaxoSmithKline (GSK) Company, which is a pharmaceutical and Biotechnology manufacturing company. A total of 132 questionnaires were handed out to staff working directly or supporting the production function where lean management program referred to as the GSK Production System is in use. The findings presented in table 4.1 indicate the response rate in the field survey exercise. From the 132 questionnaires that were issued out, 109 were successfully returned in time for data analysis. This represented 83% response rate. According to Graham (2002), a response rate of 50% and above is satisfactory in conducting data analysis. In addition, Mugenda and Mugenda (2003), affirmed that a response rate of 60% and above, was sufficient for conducting an efficient data analysis whose findings would be a representative of the general phenomena under study. The study therefore utilized a sample of valid responses for all the returned questionnaires, thus N = 109.

Table 4.1 Response Rate

<table>
<thead>
<tr>
<th>Outcome on Questionnaires</th>
<th>Frequency</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Responded</td>
<td>109</td>
<td>83%</td>
</tr>
<tr>
<td>Not-Responded</td>
<td>23</td>
<td>17%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>132</td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>
4.3 Demographic Data

The study explored three demographic variables, namely; department, position and work experience. These three variables were sufficient to offer a representation of the demographic of the frontline personnel in the implementation of the lean management system in GSK.

4.3.1 Department

The production department where manufacturing takes place together with other support functions is critical components in the lean management system. The findings in table 4.2 present the respondents information on the department where they work within the GSK manufacturing site. Majority of the respondents, about 50.5% indicated that they work at the Production section. The production team forms a critical pillar in the implementation of the lean management program, as they are the backbone of the manufacturing process. The other support functions were also represented in this study, where; quality accounted for 12.8% representation, logistics (11.0%), engineering (10.1%), EHS (4.6%), Finance & procurement tied at 2.8%, GPS, technical, and security were tied at 1.8%. The main sections that interlink the manufacturing and end to end supply chain were represented in this study.

Table 4.2 Departments within GSK Global Manufacturing Facility

<table>
<thead>
<tr>
<th>Department</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Production</td>
<td>55</td>
<td>50.5%</td>
</tr>
<tr>
<td>GPS</td>
<td>2</td>
<td>1.8%</td>
</tr>
<tr>
<td>Engineering</td>
<td>11</td>
<td>10.1%</td>
</tr>
<tr>
<td>Logistics</td>
<td>12</td>
<td>11.0%</td>
</tr>
<tr>
<td>Quality</td>
<td>14</td>
<td>12.8%</td>
</tr>
<tr>
<td>Technical</td>
<td>2</td>
<td>1.8%</td>
</tr>
<tr>
<td>Finance</td>
<td>3</td>
<td>2.8%</td>
</tr>
<tr>
<td>Procurement</td>
<td>3</td>
<td>2.8%</td>
</tr>
<tr>
<td>Security</td>
<td>2</td>
<td>1.8%</td>
</tr>
<tr>
<td>EHS</td>
<td>5</td>
<td>4.6%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>109</strong></td>
<td><strong>100.0%</strong></td>
</tr>
</tbody>
</table>
4.3.2 Position and Work Experience at the Company

The position represents the respondent’s tasks alignment as per the job description issued by their respective line managers. The findings in table 4.3 indicate that, most of the participants in the study were complementary workers representing about 31.2% of the respondents. Production and engineering technicians were about 27.5% among the respondents. The distribution across different positions was; ELT at 19.3%, FLL at 11.0%, SLT (and Director) at 7.3% and Artisan/Fitters at 3.7%.

Table 4.3 Respondents Position

<table>
<thead>
<tr>
<th>Position</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Director</td>
<td>1</td>
<td>0.9 %</td>
</tr>
<tr>
<td>SLT</td>
<td>7</td>
<td>6.4%</td>
</tr>
<tr>
<td>ELT</td>
<td>21</td>
<td>19.3%</td>
</tr>
<tr>
<td>FLL</td>
<td>12</td>
<td>11.0%</td>
</tr>
<tr>
<td>Technicians</td>
<td>30</td>
<td>27.5%</td>
</tr>
<tr>
<td>Artisan/Fitter</td>
<td>4</td>
<td>3.7%</td>
</tr>
<tr>
<td>Complementary Worker</td>
<td>34</td>
<td>31.2%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>109</strong></td>
<td><strong>100.0 %</strong></td>
</tr>
</tbody>
</table>

The findings in table 4.4 indicate the respondents work experience in GSK. Majority of the respondents, 35.8%, indicated to have worked at the company for about 4 – 6 years. About 32.1% of the respondents, indicated to have worked at the organization for over 10 years. About 18.3% of the respondents indicated that they had worked at the organization for less than 3 years. Finally, about 13.8% of the respondents indicated that they worked at the organization for about 7 – 10 years.

Table 4.4 Work Experience at the GSK

<table>
<thead>
<tr>
<th>Experience at GSK</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under 3 years</td>
<td>20</td>
<td>18.3 %</td>
</tr>
<tr>
<td>4 - 6 years</td>
<td>39</td>
<td>35.8%</td>
</tr>
<tr>
<td>7 - 10 years</td>
<td>15</td>
<td>13.8%</td>
</tr>
<tr>
<td>Above 10 years</td>
<td>35</td>
<td>32.1%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>109</strong></td>
<td><strong>100.0 %</strong></td>
</tr>
</tbody>
</table>
4.4 Leadership and Management

The data presented in table 4.5, indicates the responses on the influence of leadership and management factor on the effective implementation of lean management.

The findings in table 4.5 indicate the respondent’s opinions towards numerous leadership and management factors on effective implementation of lean management at GSK. A scale of 1-5 was used where; 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, and 5 = strongly agree. Gemba approach towards practical implementation recorded a mean of 4.44. This indicates that the respondents agree that, Gemba with Purpose characterized by spending substantial time working with the shop floor teams was critical in improving safety, quality, compliance and productivity. Leadership conviction recorded a mean of 4.42, which indicates that the respondents agreed that, leadership convictions through personal commitment, taking initiatives and leading by example is a key success factor for GPS implementation. Leader volition towards GSK values recorded a mean of 4.34, which indicates that respondents agreed that a leader’s willingness to exhibit GSK Values and serving as role model by taking the lead in adhering to GPS standard contributes to successful deployment, growth and maturity.

Good leadership and goal setting recorded a mean of 4.30, which indicates that, the respondents agreed that, good leadership structure allows setting up of clear goals and identification of strategic themes which drive GSK towards achieving and transforming the supply chain to consistently satisfy the customers.

SLT active involvement registered a mean of 4.28, which indicates that, the respondents agreed that, SLT sponsorship, active involvement, understanding of the intent, the process and the possible impact of introducing GPS is critical to successfully deploy the program. Leadership alignment to objectives scored a mean of 4.27, which indicates that respondents were in congruent that, Leadership alignment through agreement of common objective and strategies determines the extent to which GPS matures with overall goal of attaining company vision and mission. Adherence to GPS standards scored a mean of 4.13. This indicates that the respondents agreed that, leadership and coaching of teams’ improvement on adherence to the five GPS standards has supported continuous improvement framework.
GSK standard approach had a mean of 4.08, which indicates that respondents agreed that GSK adoption of a standard approach towards leadership has enabled delivery of business imperatives. FLL obligation to team building registered a mean of 3.94, indicating that most the respondents agreed that, FLL role is relevant in developing and enabling a first touch team of operators to consistently deliver outstanding safety, quality, service and value to the patient. Leadership participation and inquiry scored a mean of 3.88, which indicates that, the respondents agree that the way leaders spend their time, asking questions, provoking conversations, promoting relationship and making decisions influenced GPS implementation.

**Table 4.5 Leadership and Management Factors Mean & Std. Deviation**

<table>
<thead>
<tr>
<th>Leadership and Management factors</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gemba approach practical implementation</td>
<td>4.44</td>
<td>.630</td>
</tr>
<tr>
<td>Leadership conviction</td>
<td>4.42</td>
<td>.698</td>
</tr>
<tr>
<td>Leader volition towards GSK values</td>
<td>4.34</td>
<td>.597</td>
</tr>
<tr>
<td>Good leadership allows goal setting</td>
<td>4.30</td>
<td>.553</td>
</tr>
<tr>
<td>SLT active involvement</td>
<td>4.28</td>
<td>.705</td>
</tr>
<tr>
<td>Leadership alignment to objectives</td>
<td>4.27</td>
<td>.676</td>
</tr>
<tr>
<td>Adherence to GPS standards by leaders</td>
<td>4.13</td>
<td>.795</td>
</tr>
<tr>
<td>GSK Leader standard approach</td>
<td>4.08</td>
<td>.668</td>
</tr>
<tr>
<td>FLL obligation to team building</td>
<td>3.94</td>
<td>.936</td>
</tr>
<tr>
<td>Leadership participation and inquiry</td>
<td>3.88</td>
<td>1.025</td>
</tr>
</tbody>
</table>
4.4.1 Correlation Test between Leadership & Management versus Lean Management Implementation

The findings in table 4.6 present results of the correlation test between leadership and management factor and lean management. The test registers a positive direction in the relationship between the two variables. There exists a statistical significant direct linear relationship between leadership & management and the effective implementation of lean management. The P Value (P value < 0.01, p = 0.620) indicates that the relationship is strong positive at significance level 99%. The correlation matrix indicates that there is a strong positive and statistically significant relationship (P<0.01) which indicates that a positive increase in leadership and management factors will result in a positive increase in lean management.

Table 4.6 Correlation Test Between Leadership Versus Lean Management

<table>
<thead>
<tr>
<th>Correlations Matrix</th>
<th>Leadership and Management</th>
<th>Lean Management</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leadership and Management</td>
<td>Pearson Correlation</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td>.000</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>109</td>
</tr>
<tr>
<td>Lean Management</td>
<td>Pearson Correlation</td>
<td>.620**</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td>.000</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>109</td>
</tr>
</tbody>
</table>

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

4.5 Communication

The data in table 4.7 presents the responses on the subject of communication factor influence on the effective implementation of lean management program at the GSK manufacturing line.

The findings in table 4.7 indicate the respondent’s opinions about the communication factor influence on the implementation of lean management system. A scale of 1-5 was used where; 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, and 5 = strongly agree. The respondents indicated that, regular affirmation on corporate objectives was the most critical communication aspect with a mean of 4.43. This indicates an overwhelming agreement among
the respondents that, regularly informing staff and communicating about vision, strategy, performance data and targets while maintaining permanent dialogues across all functions is a key action for GPS success. Numerous accountability levels to enhance performance recorded a mean of 4.30, which indicates that, the tiered accountability process has greatly helped in management of performance and confirming achievement of set targets in GSK.

Dynamic messaging effectiveness registered a mean of 4.22; this indicates that the respondents agree that the creation of a compelling, clear and consistent messaging to support transformational change should be prioritized when implementing GPS. Integrated communication recorded a mean of 4.19 which indicates that there exists a strong agreement among respondents that GPS success is dependent on ensuring that there exists an integrated communication plan which ensures that people are brought along the changing journey. Effective governance and decision-making during GPS implementation recorded a mean of 4.15 which indicates that the respondents agreed that, during the implementation of GPS, effective governance and decision-making, forums regularly ensured easy flow of information and follow up of pending issues thus connecting all the functions with intent to spearhead zero waste, zero defects and zero accidents.

Participatory approach registered a mean of 4.13 which indicates that the respondents agree that, development of methods such as focus groups, informal conversation surveys, question and answer meetings help the site deploy GPS. Daily evaluation on key emerging issues recorded a mean of 4.11, which indicates that respondents were in congruent that, the prevailing top three problems be captured in daily meetings and issues escalated to senior levels meetings while actions picked on accountability boards are reviewed and tracked to ensure continuous improvement.

Communication during transition phase recorded a mean of 4.09, which indicates that respondents agreed that during the transformation phase from legacy system to GPS, communication was vital in preparing employees on the upcoming change. Information flow recorded a mean of 4.06, which indicates that the respondents agreed that, information flow within the organization supports effectiveness and efficiency of GPS by ensuring there are no obstacles during cascading and escalation with the intend of improving plant productivity. Stakeholder engagement measures recorded a mean of 4.05, which indicates that respondent
agreed that, to successfully deploy a system like GPS, there is need to support the creation of core materials for stakeholder engagement and also ensure the creation of collateral such as posters, banners, plasma screen slides and newsletters among others to support site level activation.

Table 4.7 Communication Factors Mean & Std. Deviation

<table>
<thead>
<tr>
<th>Communication Factors</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regular affirmation on corporate objectives</td>
<td>4.43</td>
<td>.614</td>
</tr>
<tr>
<td>Numerous accountability levels enhance performance</td>
<td>4.30</td>
<td>.701</td>
</tr>
<tr>
<td>Dynamic messaging effectiveness</td>
<td>4.22</td>
<td>.685</td>
</tr>
<tr>
<td>Integrated communication</td>
<td>4.19</td>
<td>.631</td>
</tr>
<tr>
<td>Effective governance and decision-making during GPS implementation</td>
<td>4.15</td>
<td>.780</td>
</tr>
<tr>
<td>Participatory approach</td>
<td>4.13</td>
<td>.708</td>
</tr>
<tr>
<td>Daily evaluation on key emerging issues</td>
<td>4.11</td>
<td>.750</td>
</tr>
<tr>
<td>Communication during transition phase</td>
<td>4.09</td>
<td>.764</td>
</tr>
<tr>
<td>Information flow</td>
<td>4.06</td>
<td>.692</td>
</tr>
<tr>
<td>Stakeholder engagement measures</td>
<td>4.05</td>
<td>.917</td>
</tr>
</tbody>
</table>

4.5.1 Correlation Test on Communication Factor Influence on Lean Management Implementation

The findings in table 4.8 present the results of correlation test between the communication factor and lean management. The test records a positive direction relationship at significance level 0.01. The test establishes that there exists a significant statistical relationship between communication factors and lean management. The P value ($P < 0.01, p = 0.570$), indicates that the relationship is positive strong and an increase in communication factor will trigger a positive increase in lean management.
Table 4.8 Correlation Test Between Communication and Lean Management

<table>
<thead>
<tr>
<th></th>
<th>Communication</th>
<th>LM</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Correlations Matrix</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Communication</strong></td>
<td>Pearson Correlation</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>109</td>
</tr>
<tr>
<td><strong>Lean Management</strong></td>
<td>Pearson Correlation</td>
<td>.570**</td>
</tr>
<tr>
<td>(LM)</td>
<td>Sig. (2-tailed)</td>
<td>.000</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>109</td>
</tr>
</tbody>
</table>

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

4.6 Financial Capability

The findings in table 4.9 present the respondents' opinions on the influence of financial capability factors on the effective implementation of lean management. A scale of 1-5 was used where; 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, and 5 = strongly agree. Finance central to GPS success recorded a mean of 4.26, which indicates that the respondents agreed that finance plays an important role in supporting GSK in achieving its vision and ambition through supporting GPS to build a best-in-class, integrated supply chain for our patients and consumers. Finance capacity impacts deployment rate registered a mean of 4.17, which indicates that the respondents agreed that the financial capability of a company has an influence on the rate of deployment of lean management systems in manufacturing industries.

Capital funding of implementation projects recorded a mean of 4.08 which indicates that the respondents agreed that the allocation of time and financial resources for capital projects and operational expenses related to GPS plays an important role. Human Resource budgeting for GPS implementation recorded a mean of 4.06 which indicates that respondents agreed that the dedication of human resources through financial budgets helps expedite the implementation process of GPS. Financial capacity influence on cross industry benchmarking recorded a mean of 3.86, which indicates that the respondents agreed that financial capability influences sharing and benchmarking with other industries to cross pollinate ideas and skills through hiring of consultants from external companies but with lean experience. Finance department commitment recorded a mean of 3.82, which indicates that the respondents acknowledges training costs and cost savings initiatives roles played by finance partners.
Table 4.9 Financial Capability Factors, Mean and Standard Deviation

<table>
<thead>
<tr>
<th>Financial Capability Factors</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Finance central to GPS success</td>
<td>4.26</td>
<td>.763</td>
</tr>
<tr>
<td>Finance capacity impacts deployment rate</td>
<td>4.17</td>
<td>.776</td>
</tr>
<tr>
<td>Capital funding of implementation projects</td>
<td>4.08</td>
<td>.894</td>
</tr>
<tr>
<td>HR Budgeting for GPS implementation</td>
<td>4.06</td>
<td>.815</td>
</tr>
<tr>
<td>Financial capacity influence on cross industry benchmarking</td>
<td>3.86</td>
<td>.887</td>
</tr>
<tr>
<td>Finance department commitment</td>
<td>3.82</td>
<td>1.047</td>
</tr>
</tbody>
</table>

4.6.1 Correlation Test Between Financial Capability Factors Versus Lean Management

The findings in table 4.10 present the results for the Pearson’s correlation test between financial capability and lean management. The test establishes a positive direction relationship between the two variables and was reflected at significance level 0.01. The study establishes that there exists a significant direct statistical relationship between financial capability and lean management. The P value (P < 0.01, p = 0.719), indicates that the relationship was positive strong, implying that a positive increase in financial capability resulted in equivalent positive increase in the lean management practices.

Table 4.10 Correlation Test Between Financial Capability and Lean Management

<table>
<thead>
<tr>
<th>Correlations Matrix</th>
<th>Financial Capability</th>
<th>Lean Management</th>
</tr>
</thead>
<tbody>
<tr>
<td>Financial Capability</td>
<td>Pearson Correlation</td>
<td>1</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td></td>
<td>.000</td>
</tr>
<tr>
<td>N</td>
<td>109</td>
<td>109</td>
</tr>
<tr>
<td>Lean Management</td>
<td>Pearson Correlation</td>
<td>.719**</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>.000</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>109</td>
<td>109</td>
</tr>
</tbody>
</table>

**P<0.01 Correlation is significant at the 0.01 level (2-tailed).
4.7 Skills and Expertise

The findings in table 4.11 present the respondents' opinions on the influence of skills and expertise on the successful implementation of lean management systems. A scale of 1-5 was used where; 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, and 5 = strongly agree. The respondents indicated that, training was critical in enhancing efficacy with a mean of 4.49. This indicates that the respondents agreed that training created a risk-free environment by significantly reducing mistakes and result to GPS successful implementation.

Problem solving skills recorded a mean of 4.42, which demonstrates respondent’s agreement that having problem solving skills enable site to improve performance, towards critical targets deployed from the site strategy and to seamlessly return to standard after a safety, quality or performance/output deviation/incident. Capacity building through appraisal and participation recorded a mean of 4.36. This indicates that the respondents agreed that, coaching and development by GPS experts while giving space and freedom, praising, giving staff a greater responsibility, involvement of staff in decision making and assignment of stretching tasks makes employees feel they are part of the GPS journey which is vital in the success of lean management implementation.

Enhancing personal growth recorded a mean of 4.35, which indicates that, the respondents agreed that growing confidence of an individual and allowing for personal growth helps in improving plant productivity through waste minimization. Accountability on capacity development recorded a mean of 4.30, which indicates that the respondents agreed that, the existence of clear focus and accountability on learning and training aimed at building capability among employees who continuously invent and innovate best practices and share to other functions leads to improvement in processes. Prioritization of capacity development recorded a mean of 4.29, which indicates respondent’s agreement that, GPS implementation success depends on organizational prioritization to develop staff, embrace coaching and mentoring, motivation and inspiration with constant positive feedback aimed at improving skills.

Orientation for GPS experts recorded a mean of 4.04, which indicates that, the respondents agreed that frequent refresher trainings and inductions program developed by GPS experts have consistently facilitated the implementation of lean management in both the office and
manufacturing environment. Capacity transition planning recorded a mean of 3.99, expressing a popular agreement among respondents that there is a positive impact on GPS implementation when site develops a capability plan for both short and long-terms stand-ins or ready now deputies whose capability is at par with precedent. Integration of GPS tools with theoretical education had a mean of 3.84 which indicates that there is a slight agreement among respondents that, there is a likelihood that GPS would be affected when staff are trained on GPS tools and theoretical education on lean production.

Table 4.11 Skills & Expertise Factor Mean and Std. Deviation

<table>
<thead>
<tr>
<th>Skills and Expertise Factor</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Training on enhanced efficacy</td>
<td>4.49</td>
<td>.555</td>
</tr>
<tr>
<td>Problem solving skills</td>
<td>4.42</td>
<td>.613</td>
</tr>
<tr>
<td>Capacity building through apprenticeship and participation</td>
<td>4.36</td>
<td>.674</td>
</tr>
<tr>
<td>Enhancing personal growth</td>
<td>4.35</td>
<td>.658</td>
</tr>
<tr>
<td>Accountability on capacity development</td>
<td>4.30</td>
<td>.600</td>
</tr>
<tr>
<td>Prioritization of capacity development</td>
<td>4.29</td>
<td>.809</td>
</tr>
<tr>
<td>Orientation for GPS experts</td>
<td>4.04</td>
<td>.892</td>
</tr>
<tr>
<td>Capacity transition planning</td>
<td>3.99</td>
<td>.833</td>
</tr>
<tr>
<td>Integration of GPS tools with theoretical education</td>
<td>3.84</td>
<td>1.090</td>
</tr>
</tbody>
</table>

4.7.1 Correlation Between Skills & Expertise Versus Lean Management Implementation

The findings in table 4.12, present the findings on statistical correlation test between skills and expertise independent variable on the lean management. The test registers a positive direction relationship reflected at confidence level, 0.01. The study establishes that there exists a significant statistical relationship between the skills and expertise and lean management. The P value (P <0.01, p = 0.716), indicates that the relation is strong positive which means that a
positive change in skills and expertise, will result in an equivalent increase in lean management.

**Table 4.12 Correlation Test Between Skill & Expertise Versus Lean Management**

<table>
<thead>
<tr>
<th>Correlations Matrix</th>
<th>Skills and Expertise</th>
<th>Lean Management</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skills and Expertise</td>
<td>Pearson Correlation</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>109</td>
</tr>
<tr>
<td>Lean Management</td>
<td>Pearson Correlation</td>
<td>.716**</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td>.000</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>109</td>
</tr>
</tbody>
</table>

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

**4.8 Organization Culture**

The data computed in table 4.13 compiles the organization culture factors means and Standard deviation measured using a scale on satisfaction levels.

The findings in table 4.13 presents the means and standard deviation compiled on the effects of organization culture factors on the implementation of lean management. A scale of 1 – 5 was used where; 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, and 5 = strongly agree. The respondents were convinced that behavioral consistency was the most critical organization culture factor with a mean of 4.58. This indicates that consistent display of right behaviours while at work results in a strong culture supporting continuous improvement programs such as GPS was central to successful lean management implementation. Team work and participation registered a mean of 4.53, which indicates that working as one team from top level to shop floor level while embracing interactions and constant engagement helps in delivering of excellent work ethic which vital in success of lean management implementation. Understanding of organizational behaviors recorded a mean of 4.41, which indicates that when staff to have a clear understanding of what types of organizational behaviours are required from everyone from top to bottom level at the point of GPS
introduction is vital to its success. Having an Interest in practicing GPS basics recorded a mean of 4.37, thus indicating that living up to GPS basics daily and continuously expressing more interest for the program as a systematic improvement systems helps in integrating GPS in everyday business which is critical in realization of its success.

The reward of performance recorded a mean of 4.30, which indicates that respondents agree that rewarding performance among employees boost their morale, which is critical in effective GPS implementation and sustainability. Emphasis on adherence to rules and norms recorded a mean of 4.29, confirming respondent’s agreement with the fact that the creation of a culture that emphasizes on following rules while being mindful was vital in the effectiveness of GPS. Organizational values recorded a mean of 4.29, which indicates that the respondents agreed that to successfully deploy GPS, the GSK structures must encourage staff to be honest and open and appreciate the different stages encountered during a transformational approach.

Behavioral and performance benchmark recorded a mean of 4.28, expressing respondents’ agreement that organizations that are implementing lean systems such as GPS should consider setting expectations on behaviors and performance and empowering employees to own their development plan and objectives. Behavioral factors on GPS components recorded a mean of 4.27 which registered respondent’s agreement that the GPS mindset and behaviors highlight the critical few behaviors that underpin all other elements of the GPS. Organization environment factor recorded a mean of 4.17, which indicates respondent’s approval that organizational culture creates a calm conducive environment that helps employees understand how the GMS Strategy, GPS Strategy, and Company vision fit together.
Table 4.13 Organization Culture Factor Mean and Std. Deviation

<table>
<thead>
<tr>
<th>Organization Culture Factor</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Behavioral consistency</td>
<td>4.58</td>
<td>.711</td>
</tr>
<tr>
<td>Team work and participation</td>
<td>4.53</td>
<td>.646</td>
</tr>
<tr>
<td>Understanding of organizational behaviors</td>
<td>4.41</td>
<td>.683</td>
</tr>
<tr>
<td>Interest to practicing GPS basics</td>
<td>4.37</td>
<td>.603</td>
</tr>
<tr>
<td>Performance rewarding on motivation</td>
<td>4.30</td>
<td>.877</td>
</tr>
<tr>
<td>Emphasis on adherence to rules and norms</td>
<td>4.29</td>
<td>.936</td>
</tr>
<tr>
<td>Organizational values</td>
<td>4.29</td>
<td>.831</td>
</tr>
<tr>
<td>Behavioral and performance benchmark</td>
<td>4.28</td>
<td>.804</td>
</tr>
<tr>
<td>Behavioral factors on GPS components</td>
<td>4.27</td>
<td>.789</td>
</tr>
<tr>
<td>Organization environment factor</td>
<td>4.17</td>
<td>.948</td>
</tr>
</tbody>
</table>

4.8.1 Correlation Test Between Organization Culture Versus Lean Management

The findings in table 4.14 presents the results on the correlation test between the independent variable organization culture and lean management. The test registers a positive direction in the relationship between organization culture and lean management. The study establishes that there exists a significant statistical relationship between the organization culture and lean management. The P value ($P < 0.01, p = 0.762$), which indicates a strong positive correlation, which means that a slight increase in organization culture factors will result in positive increase in lean management factor.
Table 4.14 Correlation Test between Organization Culture and Lean Management

<table>
<thead>
<tr>
<th>Correlations Matrix</th>
<th>Organization Culture</th>
<th>Lean Management</th>
</tr>
</thead>
<tbody>
<tr>
<td>Organization Culture</td>
<td>Pearson Correlation</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>109</td>
</tr>
<tr>
<td>Lean Management</td>
<td>Pearson Correlation</td>
<td>.762**</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td>.000</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>109</td>
</tr>
</tbody>
</table>

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

4.9 Multivariate Regression Analysis of the Critical Factors Affecting Lean Management

Regression test was carried out to help test linear relationship between independent variables versus the dependent variable. The findings in table 4.15 present the model summary for the regression test of the independent variables influence of the dependent variable. The R Square value obtained for the system for the combined independent variables is 0.694. This indicates that the independent variables, notably; Organization Culture, Leadership and Mgt, Communication, Financial Capability, Skills and Expertise account for 69.4% in the variability for lean management. This means that 30.6% variability in lean management can be attributed to other factors outside this test.

Table 4.15 Model Summary

<table>
<thead>
<tr>
<th>Model Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
</tr>
<tr>
<td>-------</td>
</tr>
<tr>
<td>1</td>
</tr>
</tbody>
</table>

a. Predictors: (Constant), Organization Culture, Leadership and Mgt, Communication, Financial Capability, Skills and Expertise
The findings in table 4.16 presents the ANOVA results for the regression test. The test computes sum of squares for the test variables as 372.362 regressions. The t – statistical value, \( F (5, 103) = 46.067 \), which indicates that regression test offered significant statistical prediction of the variables.

**Table 4.16 ANOVA for the Regression Test**

<table>
<thead>
<tr>
<th>Model</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Regression</td>
<td>372.363</td>
<td>5</td>
<td>74.473</td>
<td>46.808</td>
</tr>
<tr>
<td></td>
<td>Residual</td>
<td>163.875</td>
<td>103</td>
<td>1.591</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>536.239</td>
<td>108</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a. Dependent Variable: Lean Management

b. Predictors: (Constant), Organization Culture, Leadership and Management, Communication, Financial Capability, Skills and Expertise

The findings in table 4.17 present the variables coefficient results for the regression test. These results were useful in the construction of the regression equation for the system test. The independent variables in the system included; leadership & management \( (X_1) \), communication \( (X_2) \), financial capability \( (X_3) \), skills & expertise \( (X_4) \) and Organization culture \( (X_5) \). The dependent variable is Lean Management \( (Y) \).

The regression equation for the system equation is;

\[
Y = A + B_1 X_1 + B_2 X_2 + B_3 X_3 + B_4 X_4 + B_5 X_5 + e
\]

From table 4.17, the values deduced for the system intercept (constant) is 4.424, and slopes for the independent variables are; \( B_1 = 0.134 \), \( B_2 = 0.016 \), \( B_3 =0.193 \) \( B_4 = 0.093 \) \( B_5 =0.141 \), for independent variables, leadership & management \( (X_1) \), communication \( (X_2) \), financial capability \( (X_3) \), skills & expertise \( (X_4) \) and Organization culture \( (X_5) \) respectively.

Therefore, the regression equation for this test is;

\[
Y = 0.134 X_1 + 0.016 X_2 + 0.193X_3 + 0.093 X_4 + 0.141X_5
\]
The study deduces that; a unit increase in leadership and management, results to a 0.134 unit increase in lean management, a unit increase for communication results to a 0.016 unit increase in lean management, a unit increase in financial capability results to a 0.193 unit increase in lean management, a unit increase in skills and expertise results to a 0.093 unit increase in lean management and finally a unit increase in organizational culture, results to a 0.141 units increase in lean management.

Table 4.17 The Coefficients for the Regression Test

<table>
<thead>
<tr>
<th>Model</th>
<th>Coefficientsa</th>
<th></th>
<th>Standardized</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Unstandardized</td>
<td></td>
<td>Coefficients</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
<td>Beta</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 (Constant)</td>
<td>4.424</td>
<td>1.398</td>
<td></td>
<td>3.165</td>
<td>.002</td>
</tr>
<tr>
<td>Leadership and</td>
<td>.134</td>
<td>.041</td>
<td>.240</td>
<td>3.259</td>
<td>.002</td>
</tr>
<tr>
<td>Management</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Communication</td>
<td>.016</td>
<td>.045</td>
<td>.027</td>
<td>1.357</td>
<td>.081</td>
</tr>
<tr>
<td>Financial</td>
<td>.193</td>
<td>.057</td>
<td>.306</td>
<td>3.405</td>
<td>.001</td>
</tr>
<tr>
<td>Capability</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Skills and</td>
<td>.093</td>
<td>.051</td>
<td>.164</td>
<td>1.813</td>
<td>.073</td>
</tr>
<tr>
<td>Expertise</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Organization</td>
<td>.141</td>
<td>.046</td>
<td>.293</td>
<td>3.046</td>
<td>.003</td>
</tr>
<tr>
<td>Culture</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a. **Dependent Variable:** Lean Management

4.10 Chapter Summary

This chapter focused on the findings or gaps from the data analysis carried out. This section analyzes data on the respondent’s demography together with that from the five specific objectives. The next chapter (chapter five) will focus on the discussion, conclusions and recommendations, where the findings will be compared to previous studies.
CHAPTER FIVE

5.0 DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This section of the study covers the summary of the findings, discussion, conclusion and recommendations. This is the final section of the field study where final thought on the study topics are presented. The section covers the discussion of study findings, where inferential will be made between the results obtained in this study and the literature covered on critical factors that influence lean management implementation in manufacturing companies.

5.2 Summary

The main objective of the study was to assess the impact of critical success factors on implementation of lean management systems. This study was guided by the following specific objectives: to evaluate the effect of leadership and management on lean management systems implementation at GSK; to examine the effects of communication on lean management systems implementation at GSK; to assess the effects of financial capability on lean management systems implementation at GSK; to determine the effects of skills and expertise on lean management systems implementation at GSK, and to evaluate the effects of organizational culture on lean management systems implementation at GSK.

The study was carried out at the GSK manufacturing plant located in the Nairobi industrial area. This was a convenient choice for study since manufacturing is run by a lean management program referred to as GSK production System (GPS). The target population for this study comprised of all frontline employees of the company who have direct interaction with the GPS program. The study conceptualized, structured questionnaires containing close ended questionnaires which made the survey process much faster. A response rate was above 80% indicating the results were sufficient to proceed with data analysis. Majority of the team members at the shop floor in the manufacturing facility were operatives in production section. The study deduced that the good work experience among most the participants was valuable in
offering technical insights on the effects of critical success factors central to the effective implementation of lean management system.

The study makes a finding that, leadership and management played a surmountable significant role in the effective implementation of lean management in manufacturing companies. The study makes a finding that, Gemba approach towards practical interaction with shop floor teams was critical in improvement of safety, quality, compliance and productivity with an average mean of 4.44, which makes it the most significant leadership and management element. The study establishes a 0.620 positive correlation between leadership and management and the implementation of lean management program. The study makes a finding that leadership commitment to upholding; practicing and promoting organizational values had a significant impact influence on the success of new initiatives spearheaded by the same leadership. The study makes a finding that leadership and management aspects notably; goal setting, active involvement of all leadership team, alignment of executive operations with organizational objectives, adherence to organizational standards and finally team work was central to the effective implementation of lean management within a manufacturing companies.

The study makes a finding that communication plays an integral part in execution of all organizational initiatives. The study establishes that communication defines the network through which critical information on the implementation of lean management program is exchanged. The study makes a finding that the affirmation of organizational objectives where staff are continuously reminded of the organization mission, vision and strategy yielded significant impact on the successful implementation of lean management program recording a mean average of 4.43. The study makes a finding that; there exist a strong positive correlation, with a p value of 0.570, between communication factors and the successful implementation of lean management systems. The study makes a finding that communication factors, notably; hierarchical accountability levels, dynamic messaging, integrated communication, effective governance and decision making, stakeholder participation and daily evaluation serve as critical contributors to the effective implementation of lean management systems.

The study makes a finding that financial capability is the pillar of successful implementation of lean management system. The study makes finding that initial funding for the adoption of
lean management program is the most critical stage of effective lean management implementation with an average mean of 4.26. The study makes a finding that funding gives the organization the foundational component required to initiate the transitional phase, which determines the likelihood of its end success. The study makes a finding that finance capability factors which include; funding for deployment, funding for human resources development, funding for standardization and the overall commitment of the finance department were critical to the successful implementation of the lean management program.

The study makes a finding that skills and expertise are critical advance requirements for the effective implementation of the lean management system. The study makes a finding that the most important part in the acquisition of skills and expertise required for lean management system deployment was the initial training. The study makes a finding that training contributed to significant impact on efficacy improvement with a mean average of 4.49. The study makes a finding that there exists a strong significant positive relationship between skills & expertise and the effective implementation of lean management system with a p value of 0.716. The study makes a finding that, skills & expertise factors notably; problem solving skills, capacity development through apprenticeship, personal growth, orientation and practical training were critical in ensuring effective implementation of lean management systems.

The study found that organization culture is critical in the development of the framework that highlights the process and the areas which shall be affected in the process of implementation of the lean management system. The study makes a finding that, behavioral consistency with a culture of continuously support for improvement programs was the most critical organization culture factor that significantly affected the rate of lean management systems implementation. The study makes a finding that there exists a significant strong positive correlation between organization culture and the effective implementation of lean management systems with a p value of 0.762. The study makes a finding that, organization culture factor including; team work, employee understanding of organizational behaviors, organizational values, performance benchmark, reward mechanisms and organizational environment influence the effectiveness in the implementation of lean management system.
5.3 Discussion

5.3.1 Leadership and Management Factor on Lean Management System Implementation

The finding of this study support the observation by Achanga (2006) that new technologies, leadership and management wield huge impacts on the processing and manufacturing industry worldwide. The findings also support that the observations that, that leadership and management is the pivot to successful implementation of lean in manufacturing companies. In current market, the winners are organizations with right leader and managers who keenly focus on people aspect and process aspects with an equal balance that avoids affecting either of the parties involved (Manoj, Maneesh, & Gellynck, 2016).

The findings of the study agree with Chauhan and Singh (2012) that, the commitment by top level management is vital. Management at the top, middle and lower levels failure to embrace the implementation of lean practices may intentionally or unintentionally lead to program sabotage Senior leaders should always take the lead and not only demonstrate leadership and commitment, but also show and work to create interest in the implementation process and effectively communicate the change to all employees within the organization Organizations with good structures ensure that managers are visible and directly connect to the new structures that enables active participation of all involved members.

The findings of the study agree with Mwacharo (2013) that the lack of investment in the lean manufacturing journey by upper management in Kenyan companies has seen it most closing the shop and turning factories into go downs. The findings agree that the staffs feel that the supervisory team does not respect their efforts, demoralization may take hold and the lean management system implementation effort will eventually fail. Most people argue that it I important to drive change from the shop floor but it is also important that the senior leadership team takes accountability of every event and show how realistic and achievable they are (Radnor, Transferring Lean into government, 2010).

The findings in the study agree with Jeyaraman and Teo (2011) that most of the companies that have experienced hurdles during lean implementation were ignorant on good management practices. Hence leadership and management practices are known to be fundamental basics
that need consideration before successful lean implementation initiatives. The level of management engagement and commitment contributes the largest portion of influence towards implementation of lean.

5.3.2 Communication Factor on Lean Management Systems Implementation

The findings of this study agree with Bhasin (2012) that the effectiveness of lean management systems highly depends on the ability of managers to listen and read, on their ability to write and speak clearly. The findings also agree with Karimi (2013), that local and multinational companies in Kenya would better gauge their communication departments and critically think on ways of reviving the fallen management practices that would reduce wastage and improve savings. Kirimi (2013) found that over 82% of Kenyan Local firms in manufacturing industry did not have a communication function and had no idea if that could be implemented in the near future.

The findings in this study agree with Argyris, (2013) who suggest that downward communication is mainly efficient if higher level managers communicate directly with immediate middle level managers or supervisors while concurrently immediate middle level managers’ supervisors communicate with their employees. Numerous sources of evidence affirm that increasing the authority of immediate supervisors tends to increase both performance and satisfaction among staff working in an organization. The findings support Larkin (2014) observation that seniors’ managers should communicate directly with immediate middle level managers and supervisors in day to day operations. Then, the middle level managers need to communicate with the shop floor employees and ensure that they are constantly posted. However, if there are important issues which are urgent, senior leadership team members are allowed to communicate directly with the staffs. (Gibson & Hodgetts, 2012). states that most current organization has developed the culture of having offline discussions orally after meetings and then backing up the talk with written communication which in most cases it is the email.

The findings in this study support Rymaszweska (2014), who observed that communication is driving rapid changes in lean practices across the manufacturing companies. Whereas manufacturers are embracing more efficient communication, few are aggressively exploring
the revolutionary possibilities that new product sources and process analytical capabilities herald. Lean management involves cross functional interactions and thus communication in manufacturing is inevitable. Internally, the departments share daily activities experiences and encourage lean management through learning and teaching of best practices where possible.

5.3.3 Financial Capability on Implementation of Lean Management Systems

The study findings support the observation by Ramesh and Kodali (2012) that organizations planning to implement lean practices should critically factors in financials in the project design phase. In addition, contingency funds are also vital to lean implementation in the event that amount budgeted for get exhausted during the adoption and maturity phases. In manufacturing companies, finances cover the avenues which other useful provisions such as leadership and management team remunerations can be made (Gollan, Kalfa, Agarwal, Green, & Randhawa, 2014). The findings also agree that inadequate financing among manufacturing companies is thus a major barrier to the introduction and subsequent successful implementation of lean management (Vinodh & Anesh, 2011).

The study supports Gollan et al., (2014) who observed that it is important for the senior management within an organization to make sure that adequate financial resources are available for the successful execution of lean practices. The study agrees with research studies spearheaded by Kenya Association of Manufacturers to investigate on possible barrier to lean that concluded that the availability of finances for successful adoption and implementation of lean management systems is a vital factor especially for SMEs. Despite paying attention to other elements, the reports indicated that financial capability has always been a scapegoat among Kenyan manufacturing companies with the excurse of cost cutting leaning on lean practices as the best alternative.

5.3.4 Skills and Expertise on Lean Management Systems Implementation

The findings in the study support Jeyaraman and Teo (2011) who highlighted those organizations always need to recruit and retain high skilled personnel for the sake of sustainability when designing and implementing lean initiatives. Hence manufacturing companies with a thought of lean needs to pay attention on skills and training capability for
staff in order to achieve their set goals of lean management implementation (Quesada & Madrigal, 2013). Asher and Rijit (2012) argue that manufacturing industries all over the world has been struggling with three dimensions pertaining to expertise, training and skills. These include employee training, employee sufficiency and employee learning.

The findings indicate that successful lean adoption and implementation requires the managers to be inspiring and always looking for continuous improvement and ensuring that the whole team are involved in that journey. Addition to the skills, managers also require the ability to understand, to a sufficient level, the technical aspects of the area that they are responsible for to enable effective problem solving while also understanding when process or technical issues may need to be escalated for further support. In manufacturing of products, it should be clearly known that harnessing the desire to drive for the best performance while maintaining high standards is paramount. (Wong, Ignatius, & Soh, 2014).

The study findings agree that organizations implementing lean management should prioritize people leadership for a team of staff working within a production environment (Vinodh & Anesh, 2011). Further, manufacturing firms’ strategies need to suffice the aspect of leading and coaching of teams on shop floor to ensure adherence to standards for safety, quality, compliance and output. The study findings indicate that lean management supports the concept for a team to continuously improve on the capability of both the individuals and the overall team to increase their performance towards targets (Aminuddin, Garza-Reyes, Kumar, Antony, & Rocha, 2016).

5.3.5 Organization Culture on Lean Management Systems Implementation

The findings in the study support Conceição and Altman (2011), Who observed that organizational culture is largely based on customs, attitudes, beliefs and written and unwritten policies that have been created over time and are accepted to be organized. The study further supports Shook (2010) corporate culture can be shown by the ways the company conducts its operations, handles its staffs, consumers and the wider community. In addition, it can be deduced that the way freedom is expressed in decision making, employee expression and suggestion of new ideas. The findings in the study support Moeuf, Tamayo, Lamouri, Pellerin, and Lelievre (2016) who observed that employee commitment towards company objectives
and the way power is exercised and information flows through the hierarchy influences the organizational culture. In manufacturing companies, culture helps in productivity and performance and provides guidelines on product delivery across the market. Corporate culture is one group of person’s behaviour and attitude (Noori, 2015).

The study findings support Marodin and Saurin (2015) observation that people’s way of thinking and acting is guided and changed by lean cultures that support sincerity and team work effort. The study findings show that, in lean culture employees are expected to change their behaviors, emotions and political process. The study supports Gareth (2014) who noted that, organizations that ignored to stem up culture before lean implementation experience difficulties during the adoption and implementation phases and some ended up closing down the shops. The commitment shown by manufacturing companies to develop supportive culture which is deemed as an essential platform for the implementation of lean management systems is highly encouraged.

5.4 Conclusions

5.4.1 Leadership and Management on Lean Management Systems Implementation

The study makes a conclusion that, leadership and management is critical in the formulation, planning and directing of operations geared towards the adoption and implementation of lean management systems. The study concludes that the organizational top leadership approaches and strategies they use in dissemination of their obligation played a significant role in determining the likelihood for success in the implementation of lean management system. The study concludes that, first hand approach in the implantation of lean management system spearheaded by the leadership team was vital in the success of lean management program. The study makes a conclusion that leadership and management factors notably; goal setting, active involvement of all leadership team, alignment of executive operations with organizational objectives, adherence to organizational standards were positive determinants in the successful implementation of the lean management system. The study concludes that a highly concerted and strong commitment by the top organization leadership towards the implementation of lean management system is more likely to results in a successful implementation of the lean management system.
5.4.2 Communication on Lean Management Systems Implementation

The study concludes that the communication played a critical central role in the success of all organizational initiatives such as the implementation of lean management system. The study concludes that, communication formed the network through which information required for the implementation of lean management system was passed across. The study concludes that the strategy of continuous affirmation of organization plans and corporate objectives played a significant role in determining the effectiveness in implementation of lean management system. The study concludes that, correct communication strategy determines the speed and accuracy through which important information can be passed across different levels in the course of implementation of lean management program. The study makes a conclusion that, communication factors including; hierarchical accountability levels, dynamic messaging, integrated communication, effective governance and decision making, stakeholder participation and daily evaluation are determinants of the level of effectiveness in the implementation of lean management program.

5.4.3 Financial Capability on Lean Management Systems Implementation

The study makes a conclusion that financial capability is the most critical factor that determines the effective implementation of lean management system. The study makes a conclusion that, organizational financial strength determines the ability to accommodate the changes organization need and the consequent funding these changes such as the introduction and adoption of lean management systems. The study makes a conclusion that; the financial requirements for implementation of lean management system are influenced by strategy in terms of tools and manpower that would be involved in the implementation of the new system. A more advanced platform would be costly to implement and effectively run as it would require complementary top-quality manpower to ensure consistency. The study concludes that, financial capacity factors including; funding for deployment, funding for human resources development, funding for standardization and the overall commitment of the finance department are the determinants of successful implementation of lean management system.
5.4.4 Skills and Expertise on Lean Management Systems Implementation

The study concludes that, skills and expertise play a critical role at the frontline in the implementation of lean management system. The study concludes that training is the most critical component in imparting the requisite knowledge that is required in the implementation of lean management system. The study concludes that the overwhelming co-linearity between skills and expertise and the effective implementation of lean management indicate that, the organizational level of human resources in terms of technical skills in lean management models and tools will significantly impact on the effectiveness in its implementation. The study makes a conclusion that, higher capacity in terms of technical expertise would reflect a higher success potential in the implementation of lean management programs. The study makes a conclusion that, skills and expertise factors, which include; problem solving skills, capacity development through apprenticeship, personal growth, orientation and practical training are critical determinants of the successful implementation of lean management.

5.4.5 Organizational Culture on Lean Management Systems Implementation

The study makes a conclusion that organization culture played a critical role in determining that ability for the institutional factor for an organization to effectively adopt and implement lean management. The study makes a conclusion that, the organizational consistency in affirming its behavioral approach towards operational strategies will significantly determine the success of the product or service flow. The study concludes that the adoption of lean management program requires optimal cross-border commitment in acclimatizing and adapting to the changes that would come with its implementation. The study makes a conclusion that organization culture factors which include; team work, employee understanding of organizational behaviors, organizational values, performance benchmark, reward mechanisms and organizational environment are vital to effective implementation of lean management.
5.5 Recommendations

5.5.1 Recommendations for Improvement

5.5.1.1 Leadership and Expertise on Lean Management Systems Implementation

The study recommends that organizational leadership is the most responsible organizational component for the effective implementation of lean management program, thus firsthand approach must begin with determination of administration requirements for managing the transition process towards adoption of lean management programs. Laxity in decision making or the practice of reactive approach will result in a failure as it would indicate the lack of commitment from the top, the triggering same approach down the hierarchy. Therefore, the study recommends for pro-activeness in up taking leadership obligation in the course of implementation of the lean management program.

5.5.1.2 Communication Factor on Lean Management Systems Implementation

The study recommends for the initial assessment of the communication needs in the initial stages for implementing the lean management program. This should inform the basis for the formulation of the concurrent communication strategy that is aligned to the objectives of the lean management program. This shall in turn form the basis of communicating corporate objectives and affirming the organization operations that will result in seamless integration of the lean management program.

5.5.1.3 Financial capacity and Lean Management Systems Implementation

The study recommends that, the implementation of lean management program should commence upon determination and approval for access to the financial resources that will be required for the implementation of the system. This should inform the processes of budgeting and allocation of sufficient funds for training the staff and the purchase of the equipment that would be needed in the implementation of the system. The study recommends that, the implementation of lean management program should commence only when the financial resources are determined to be sufficient to cover the whole implementation phase. This would
be vital in averting any likelihood for failure in the implementation process as the level of success is related to the level of financial commitment.

5.5.1.4 Skills and Expertise on Lean Management Systems Implementation

The study recommends that, highest priority should be given to the training and imparting of technical skills required for integration of lean management programs in the new organizational operational strategy. The study recommends for the adoption the apprenticeship approach to put the staff through a practical learning process throughout the implementation phase till they satisfy highest efficiency level. The study recommends for the certification of technical requirements for the integration of lean management system to serve as a bridge attaining basic minimum technical skills before formal approval to interaction with the lean management program.

5.5.1.5 Organizational Culture on Lean Management Systems Implementation

The study recommends that the organizational values should adapt to changes to the new system of administration. The organizational leadership should commit to create an environment that will give employees freedom to air their opinions on best approaches through which they believe the new system should be implemented. The organization leadership must cultivate the culture of integrating operational strategies through the consultative framework that incorporates all staff members and create a feeling of appreciation for employee efforts and enhancement of team work.

5.5.2 Recommendations for Further Studies

The study recommends that future researchers should attempt and evaluate the impact of financial planning on the success of Lean management programs and the impact of employee commitment on the success of lean management programs in manufacturing companies. Further studies should be conducted on a company that has reached maturity stage on lean management system and should have at least been in three-year practice post implementation. At the time of study GSK was at the early stages of implementation. Researchers should further benchmark on top performing companies with a track record on lean management systems.
REFERENCES


Lean Enterprise Institute. (2017, February 25). What is Lean. Retrieved from Lean Enterprise Institute, Inc. All rights reserved.: http://www.lean.org/WhatsLean/


Obure, P. (2017, Mar 02). Do you feel empowered in your Job. (M. Nathaniel, Interviewer)


APPENDIX I: LETTER OF INTRODUCTION

Dear Respondent,

My name is Nathaniel Mupe and I am undertaking an MBA at United States International University -Africa. I am currently doing a project to Assess the Critical Success Factors That Affect Lean Management Systems Implementation in Manufacturing Companies - a Case Study of GlaxoSmithKline. You being part of the team involved in GPS implementation I humbly seek your assistance in this study via filling the survey questionnaire.

Kindly spare approximately 15 minutes. The researcher would like to assure you that the information gathered will be kept confidential and used strictly for the purpose of this research only. The usefulness of the information to the researcher will solely depend on your honesty. I would like to take this opportunity to express my heartfelt thanks for your active involvement in assisting me in my educational endeavors. If you require additional information or have questions, please contact me on nathmupe@gmail.com.
APPENDIX II: RESPONDENTS QUESTIONNAIRE

All responses given to the questionnaire, including any personal information requested, will be kept strictly confidential. Your feedback will only be used in combination with the inputs of others participating in the study and will not be disclosed. Kindly contact the researcher by providing your email as illustrated below in case you need a preview of this project report.

Email address: ……………………………………………………………………….

Please tick [✓] where appropriate or fill the information as necessary.

### SECTION A: DEMOGRAPHIC INFORMATION

1. **Department:**
   - Production [ ]
   - GPS [ ]
   - Engineering [ ]
   - Logistics [ ]
   - Quality [ ]
   - Technical [ ]
   - Finance [ ]
   - Procurement [ ]
   - HR [ ]
   - Security [ ]
   - EHS [ ]

2. **Position:**
   - Director [ ]
   - SLT [ ]
   - ELT [ ]
   - FLL [ ]
   - Technician [ ]
   - Artisan/Fitter [ ]
   - Complementary Worker [ ]

3. **For how long (in years) have you been working in GSK?**
   - 3 or Under [ ]
   - 4-6 [ ]
   - 7-10 [ ]
   - 10 and above [ ]
### SECTION B: EFFECTS OF DIFFERENT CRITICAL SUCCESS FACTORS ON LEAN MANAGEMENT – A CASE STUDY OF GSK PRODUCTION SYSTEM

#### 4. Leadership / Management and GSK Production System

Please indicate on the scale provided below by ticking the extent to which you agree with the following statements: **Strongly agree =5, Agree =4, Neutral =3, Disagree =2, Strongly Disagree =1**

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
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<tbody>
<tr>
<td>Leadership convictions through personal commitment, taking initiatives and leading by example is a key success factor for GPS</td>
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<td>GSK adoption of a standard approach towards leadership has enabled delivery of business imperatives</td>
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<td>Gemba with Purpose characterised by spending substantial time working with the shop floor teams improves safety, quality, compliance and productivity</td>
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<tr>
<td>Good Leadership structure allows setting up of clear goals and identification of strategic themes which drive GSK towards achieving and transforming the supply chain in order to consistently satisfy the customers</td>
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<tr>
<td>FLL role is relevant in developing and enabling a first touch team of operators to consistently deliver outstanding safety, quality, service and value to the patient</td>
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<td>Leadership and coaching of teams has improved adherence to the five GPS standards and consequently supported continuous improvement framework</td>
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<td>I believe that leader’s willingness to exhibit GSK Values and serving as role model by taking the lead in adhering to GPS standard contributes to successful deployment, growth and maturity.</td>
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<td>Statement</td>
<td>Strongly Disagree</td>
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<td>SLT sponsorship, active involvement, understanding of the intent, the process and the possible impact of introducing GPS is required to successfully deploy the program</td>
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<tr>
<td>Leadership alignment through agreement of common objective and strategies determines the extent to which GPS matures with overall goal of attaining company vision and mission</td>
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<tr>
<td>The way the leaders spend their time, ask questions, provoke conversations, promote relationship and make decisions affects GPS implementations.</td>
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</table>

5. **Communication and the GSK production System**

Please indicate on the scale provided below by ticking the extent to which you agree with the following statements: **Strongly agree =5, Agree =4, Neutral =3, Disagree =2, Strongly Disagree =1**

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regularly informing staff and communicating about vision, strategy, performance data and targets while maintaining a permanent dialogues across all functions is a key action for GPS success</td>
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<tr>
<td>The Tiered Accountability process has greatly helped in management of performance and confirming achievement of set targets in GSK</td>
<td>o</td>
<td>o</td>
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<td>o</td>
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<tr>
<td>Statement</td>
<td>Strongly Disagree</td>
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<tr>
<td>Current top three problems are captured in daily meetings and issues escalated to senior levels meetings while actions picked on accountability boards are reviewed and tracked to ensure continuous improvement</td>
<td>○</td>
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<tr>
<td>Information flow within the organization supports effectiveness and efficiency of GPS by ensuring there are no obstacles during cascading and escalation with the intend of improving plant productivity</td>
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<tr>
<td>During the transformation phase from legacy system to GPS Communication played a big role to prepare the employees on the upcoming change</td>
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<tr>
<td>When Implementing GPS effective governance and decision-making ,forums regularly ensured easy flow of information and follow up of pending issues thus connecting all the functions with intent to spearhead zero waste, zero defects and zero accidents</td>
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<tr>
<td>GPS success is dependent on ensuring that there exist an integrated communication plan which ensures that people are brought along the changing journey</td>
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<tr>
<td>It is true that creation of a compelling , clear and consistent messaging to support transformational change should be prioritized when implementing GPS</td>
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<tr>
<td>To successfully deploy a system like GPS , there is need to support the creation of core materials for stakeholder engagement and also ensure the creation of collateral such as Posters, banners, plasma screen slides and newsletters among others to support site level activation</td>
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<tr>
<td>Development of methods such as focus groups, informal conversation surveys, question and answer meetings help the site deploy GPS</td>
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</table>
### 6. Financial Capability and the GSK Production System

Please indicate on the scale provided below by ticking the extent to which you agree with the following statements: Strongly agree = 5, Agree = 4, Neutral = 3, Disagree = 2, Strongly Disagree = 1

<table>
<thead>
<tr>
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<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Finance plays an important role in supporting GSK in achieving its vision and ambition through supporting GPS to build a best-in-class, integrated supply chain for our patients and consumers</strong></td>
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<tr>
<td><strong>The financial capability of a company may influence either the rate of deployment or hamper the process of implementing lean management systems in manufacturing industries</strong></td>
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<tr>
<td><strong>Finance department interaction with employees with regards to GPS either in terms of training cost or coaching on cost savings strategies has an impact on GPS implementation</strong></td>
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<td><strong>To a great extend dedication of human resources through financial budgets helps expedite the implementation process of GPS</strong></td>
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<tr>
<td><strong>Allocation of time and resources such as funds for capital projects and operational expenses related to GPS plays an important role during implementation phase</strong></td>
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<tr>
<td><strong>Financial capability influences sharing and benchmarking with other industries to cross pollinate ideas and skills through hiring of consultants from external companies but with lean experience.</strong></td>
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</table>
## 7. Skills and Expertise and the GSK Production System

Please indicate on the scale provided below by ticking the extent to which you agree with the following statements: **Strongly agree = 5, Agree = 4, Neutral = 3, Disagree = 2, Strongly Disagree = 1**

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<tr>
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<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
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<tbody>
<tr>
<td>Training creates a risk free environment through elimination or significant reduction of mistakes and contributes to GPS successful implementation</td>
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<tr>
<td>Coaching and development by GPS experts while giving space and freedom, praising, giving staff a greater responsibility, involvement of staff in decision making and assignment of stretching tasks makes employees feel they are part of the GPS journey</td>
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<tr>
<td>Existence of clear focus and accountability on learning and training aimed at building capability among employees who continuously invent and innovate best practices and share to other functions leads to improvement in processes</td>
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<tr>
<td>Frequent refresher trainings and inductions program developed by GPS experts has consistently facilitated the implementation of lean management in both the office and manufacturing environment</td>
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<tr>
<td>There is a positive impact on GPS implementation when site develops a capability plan for both short and long-terms stand-ins or ready now deputies whose capability is at par with precedent</td>
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<tr>
<td>GPS implementation success depends on organizational prioritization to develop staff, embrace coaching and mentoring, motivation and inspiration with constant positive feedback aimed at improving skills</td>
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<tr>
<td>Problem solving skills enable site to improve performance, towards critical targets deployed from the site strategy and to seamlessly return to standard after a safety, quality or performance/output deviation/incident.</td>
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<td>Growing confidence of an individual and allowing for personal growth helps in improving plant productivity through waste minimization.</td>
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<tr>
<td>It is likely that GPS would be affected when staff are trained on GPS tools and theoretical education on lean production</td>
<td>☐</td>
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8. **Organizational Culture and the GSK Production System**

Rate the applicability of the organizational culture and behaviors on your day to day application of GPS as a way of working in GSK. Tick appropriately. Use a five point scale of 1-5 with: **Key**: 5 = strongly agree; 4 = agree; 3 = Neutral; 2 = disagree; 1 = strongly disagree

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>The GPS mindset and behaviors highlight the critical few behaviors that underpin all other elements of the GPS. These are the behaviors that apply to all employees and are essential to our ability to deliver zero accidents, zero waste and zero defects but also maintain and sustain them.</td>
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<td>Organizations implementing lean systems such as GPS should consider setting expectations on behaviors and performance and empowering employees to own their development plan and objectives.</td>
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<td>Living up to GPS basics on a daily basis and showing more interest for the program as a systematic improvement systems helps in integrating GPS in everyday business.</td>
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<td>Organizational culture creates a calm conducive environment that helps employees understand how the GMS Strategy, GPS Strategy, and Company vision fit together. To successfully deploy GPS GSK structures must encourage staff being honest and open and appreciate the different stages encountered during a transformational approach.</td>
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<td>Working as one team from top level to shop floor level while embracing sharing and constant engagement helps in delivering of excellent ways of working.</td>
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<td>Creation of a culture that emphasizes on following rules and being mindful of others determines the effectiveness of GPS.</td>
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<td>Reward and celebration or recognition for the best performers is a key motivational item that would have huge impact on GPS implementation and sustainability.</td>
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<td>It is vital for staff to have a clear understanding of what types of organizational</td>
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</table>
behaviours are required from everyone from top to bottom level as GPS is introduced
Consistently displaying of right behaviours while at work results in a strong culture
supporting continuous improvement programs such as GPS and eventually leads to
excellent performance

<table>
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THANK YOU VERY MUCH FOR YOUR SUPPORT IN THIS STUDY PROJECT